SPECTRUM®

Cabletron Ethernet Hubs
Management Module Guide

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The Complete Networking Solution™

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Printed in the United States of America.

Order Number: 9030367 E8

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Preface

Use this guide if you are going to manage a Cabletron Ethernet Hub through SPECTRUM. Before reading this guide, you should be familiar with SPECTRUM's functions as described in the Operations and Administration documentation. You should also be familiar with any network management and hardware requirements described in the related hardware documentation.

What is in this Guide

The following chapter descriptions outline the organization of the *Cabletron Ethernet Hubs Management Module Guide.*

Chapter	Description
Chapter 1 **Introduction**	Describes the Cabletron Ethernet Hubs management module and model types.
Chapter 2 **Device Views**	Describes the Device Views available for each Cabletron Ethernet Hub model type.
Chapter 3 **Application Views**	Describes the Application Views available for each Cabletron Ethernet Hub model type.
Chapter 4 **Configuration Views**	Describes the Configuration View available for each Cabletron Ethernet Hub model type.
Chapter 5 **Diagnostic Views**	Describes the Diagnostic View available for each Cabletron Ethernet Hub model type.
Chapter 6 **Performance Views**	Describes the Performance View available for each Cabletron Ethernet Hub model type.
Chapter 7 **Event and Alarm Messages**	Contains a listing and explanation of the alarm and event messages generated in the Event Log or Alarm View for the Cabletron Ethernet Hub model types.

Conventions

In this manual, the following conventions are used:

- Command names are printed in **bold**; for example, **Clear** or **Save & Close**.
- Menu selections to access a view are printed in **bold**; for example, **Configuration** or **Detail**.
- Buttons are represented by a shadowed box; for example, **Help**.
- References in blue are hypertext links for online documents.

Related SPECTRUM Documentation

Refer to the Operations, Administration, and following documentation for more information on using SPECTRUM:

SPECTRUM Report Generator User's Guide

Getting Started with SPECTRUM for Operators

Getting Started with SPECTRUM for Administators

How to Manage Your Network with SPECTRUM

Other Related Documentation

Refer to the following documentation for more information on managing TCP/IP-based networks:

LAN Troubleshooting Handbook, Mark Miller (1989, M&T Publishing, Inc.)

The Simple Book — An Introduction to Management of TCP/IP-based Internets, Marshall T. Rose, Performance Systems International, Inc.

Computer Networks, Andrew S. Tanenbaum, Prentice-Hall, Inc.

Local Area Networks, Architectures and Implementations, James Martin & Kathleen K. Chapman for the Arben Group, Inc. (1989, Prentice-Hall, Inc.)

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spectrum-techdocs@ctron.com

Chapter 1

Introduction

What is in this Chapter

This chapter describes the SPECTRUM Management Module for the Cabletron Ethernet Hub family of devices. It also provides the Model Type Names assigned to the hubs in SPECTRUM. The Model Type Name refers to the template used to specify device attributes, actions, and associations for device models in SPECTRUM.

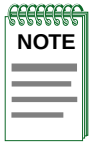
Cabletron Ethernet Hubs Management Module

The SPECTRUM Ethernet Hubs Management Module manages the Cabletron Ethernet Hub family of devices by using the SNMP network management agent and the Management Information Bases (MIBs), included with the management module.

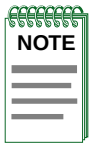
Table 1-1 provides the Model Type Names for the Cabletron Ethernet hubs and a brief description of the intelligent hub module devices supported by the Cabletron Ethernet Hubs Management Module.

Table 1-1. Model Type Descriptions

Model Type Name	Hub Description
Hub_CSI_IRBM	An Intelligent Repeater Bridging Module (IRBM) managed through the Simple Network Management Protocol (SNMP) only. This module includes bridging functionality that is similar to a Cabletron SNMP NB25.
Hub_CSI_IRM2	An Intelligent Repeater Module-2 (IRM2) managed through SNMP only.
Hub_CSI_IRM3	An Intelligent Repeater Module-3 (IRM3) managed through SNMP only.
Hub_CSI_SIRM	An Intelligent Repeater Module (IRM) managed through SNMP only.
Hub_CSI_MRXi	An MRXI intelligent repeater module managed through SNMP only.
Hub_CSI_MiniM	A MiniMMAC intelligent repeater module managed through SNMP only.



If you have installed both the Hub_CSI_MRXi (Cabletron Ethernet Hubs Management Module) and the HubCSIMRXi (MRXI-24 Management Module), and are going to model an MRXI or MRXI-2, make sure you select the ***Hub_CSI_MRXi*** *(MRXI/MRXI-2) model type from the Select Model Type menu, NOT the* ***HubCSIMRXi*** *(MRXI-22 or 24) model type.*



If you are running a previous version of SPECTRUM, the following user interface aspects may differ from those in SPECTRUM version 4.0:

- *Order and names of menu selections*
- *Navigational features (mouse button functionality)*

For information about menu selections and navigating within previous versions of SPECTRUM, refer to the ***SPECTRUM System User's Guide****. For information about menu selections and navigating within SPECTRUM version 4.0, refer to* ***SPECTRUM Menus*** *and* ***SPECTRUM Views****.*

Terminology

This section defines several terms used in this guide to describe Cabletron Ethernet hub and board model types.

Hub Chassis
The software model representation of an MMAC with no boards installed in its slots. An MMAC chassis can have three, five, or eight slots.

Media Interface Modules (MIMs)
The software model representations of boards installed in an MMAC hub chassis. For the purposes of this guide, the term MIM will represent all MIMs that can be installed in a Cabletron hub.

Intelligent MIMs
MIMs that provide network management functions and network media interfacing.

Non-intelligent MIMs
MIMs that provide interfaces to different kinds of network media, but have no network management capabilities.

Single-Port Interface Modules (SPIMs)
For the MRXI and MiniMMAC hubs, this term is used to represent the non-intelligent MIMs that can be installed in these hub chassis types.

Chapter 2

Device Views

What is in this Chapter

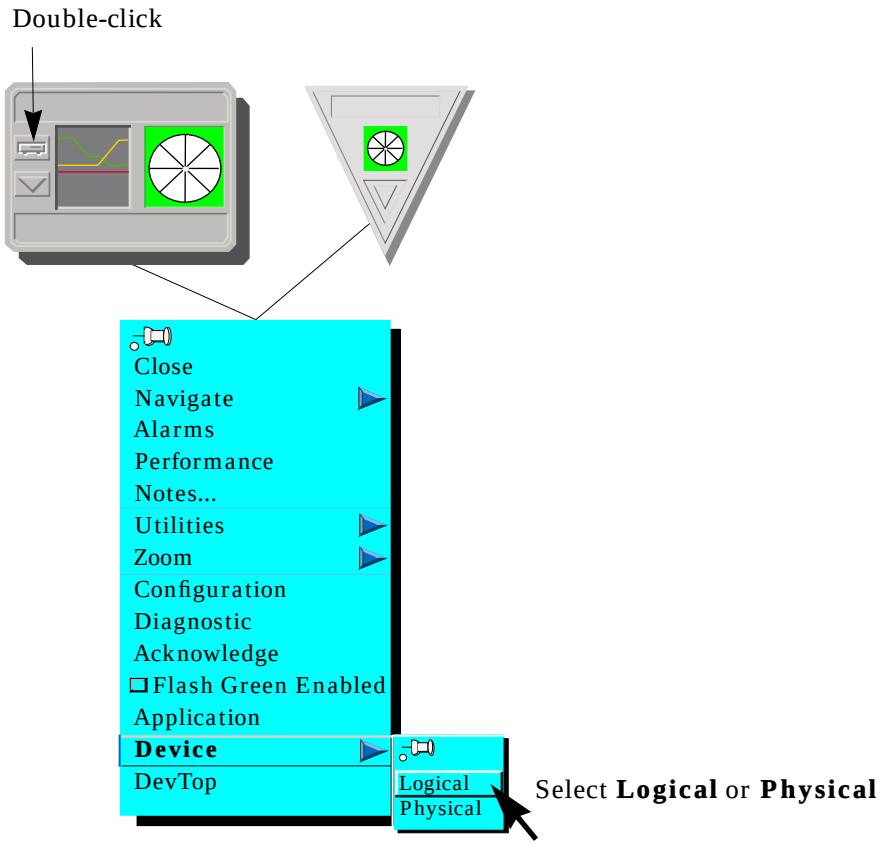
This chapter provides a description of the Device View for the Cabletron Ethernet Hubs Management Module. This description includes an explanation of the menu bar access to the various views used to control and monitor the hub devices, and how to use the Device View to view the logical and physical representations of Cabletron hubs, access SPECTRUM generic views, and monitor hub performance. It also points out differences in the Device Views of various Cabletron hubs.

Accessing the Device View

You can access the Device View using one of the following methods (refer to Figure):

- Double-click on the Device View button of the icon. This opens the Device View last accessed (i.e., Logical or Physical Device View) for this device.
- Highlight the icon and select **Device -> Logical** or **Device -> Physical** from the Icon Subviews menu. The Hub_CSI_MRXi and Hub_CSI_ MiniM model types do not support the Logical/Physical submenu, and provide access to the Logical Device View through the **Device** menu item.

Figure 2-1. Accessing the Device View

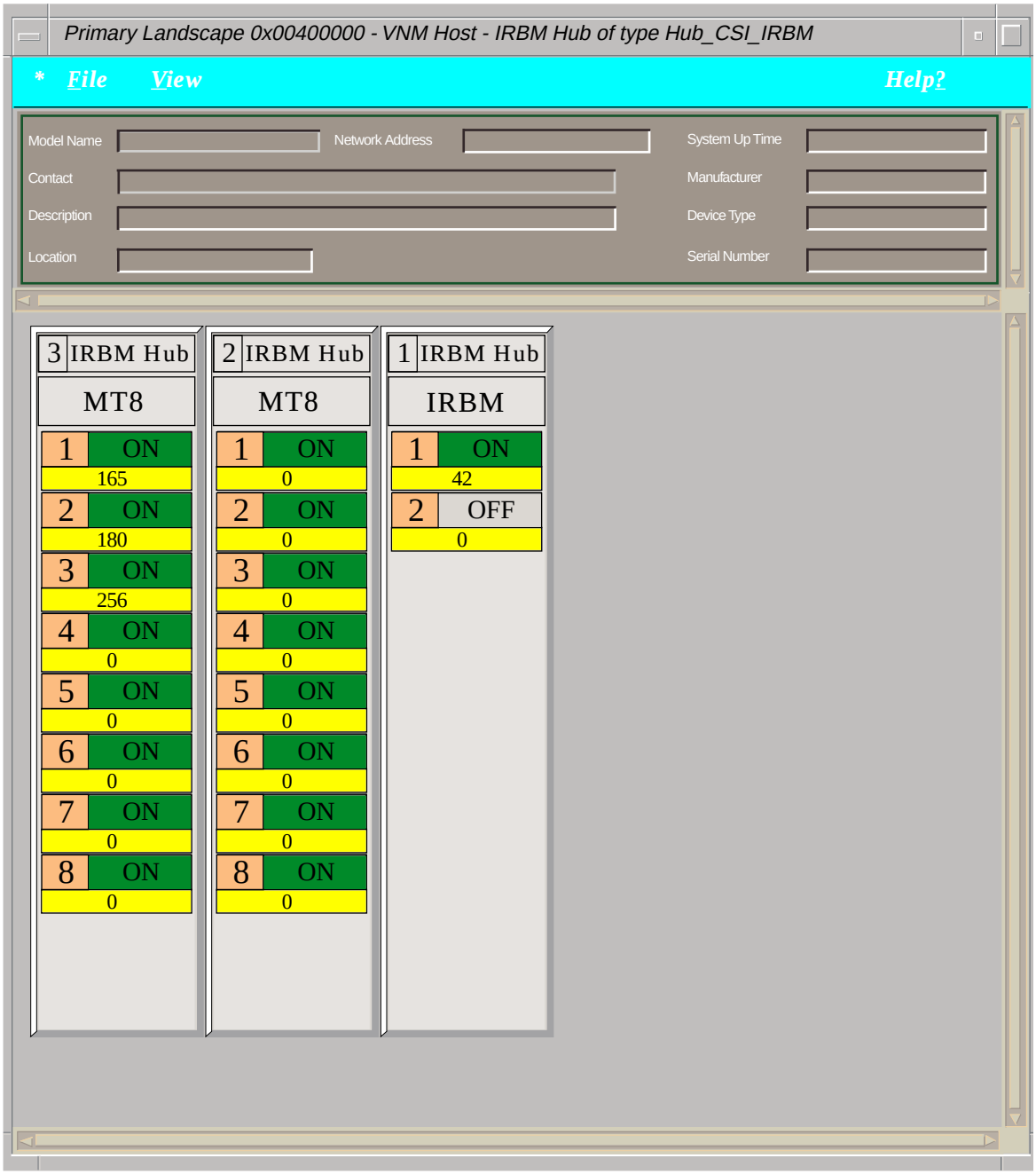


Ethernet Hubs Device View Description

The Device View for a hub allows you to view a logical or physical representation of the Media Interface Modules (MIMs) installed in a hub. The logical MIM representation shows a port status label and a logical gauge, while the physical MIM representation shows the actual physical appearance of the module and its LEDs. The Device View also provides you with menu bar access to the views that monitor and control the hub, the hub modules and each module port.

The Device View shows an actual representation of the hub configuration. The representation is updated after each SPECTRUM polling cycle to show any changes in the hub configuration. For example, if a module is pulled from or added to the hub, the device view displays the new configuration. Figure displays one example of a Cabletron Ethernet Hub Device View.

Figure 2-2. Cabletron Hub Device View



Device View Banner

The top portion of the IRM, IRM2, IRM3, and IRBM Logical Device Views displays the following information. A condition status banner surrounding this information displays the condition status color for the device, with the exception of Flashing Green, which is only valid for the Contact Status Label. Refer to Table 3-1 for definitions of condition status colors.

Model Name
The user-defined or default model name.

Net Address
The Internet Protocol (IP) address assigned to the device.

Sys Up Time
The time the device has been active without failure, displayed in the following format: days+hours:minutes:seconds.

Contact
The textual identification and contact information of the person responsible for managing the device.

Manufacturer
The manufacturer of the device.

Description
A textual description of the device. This description may include the name and version of the hardware type, the software operating system, and the networking software.

Device Type
A hardware description of the device being modeled.

Location
The location of the device as entered in the Creation dialog box when the model was created. If no location has been specified, this field displays the model name of the SPECTRUM location view containing the device.

Serial Number
The serial number of this device.

MMAC Device Panel

The top portion of a MiniMMAC hub Device View displays an MMAC Device Panel. The IRBM, IRM, IRM2, and IRM3 Device Views also display the Device Panel when accessed by selecting the Physical Device View from the Icon Subviews Menu. The MMAC Device Panel appears in the Device View in both the logical and physical MIM representations. The MMAC Device Panel displays the following information about the hub:

Name
The user-defined or default model name for the hub.

Location
The location of the device as entered in the Creation dialog box when the model was created. If no location has been specified, this field displays the model name of the SPECTRUM location view containing the device.

Net Address
The IP address of the hub.

Device Type
The SPECTRUM model type name of the hub.

System UpTime
The time the hub has been active without failure. The time is displayed in the following format: *days+hours:minutes:seconds*

The colored rectangle that appears around these fields displays the device contact status. For a list of device contact status colors, refer to Table 3-2.

The MMAC Device Panel also provides a **Logical Gauges** button and a **Gauge Mode** button. These buttons allow you to change the type of statistical information presented in the Logical MIM horizontal bar gauges. The Logical MIM bar gauges appear under the name of the module (e.g., IRM2) and under each module port. The following sections describe how these buttons work.

Logical Gauges

The Logical Gauges button lets you change the statistics represented in the horizontal gauges for the entire MMAC. The horizontal gauges can display a given statistic as either a percentage or a rate, depending on the setting of the **Gauge Mode** button. When you single-click on the Logical Gauges button, a menu appears. Table 2-1 provides a list of the Logical Gauge menu options.

Gauge Mode

The Gauge Mode button allows you to change the gauge representation of the selected statistic. Table 2-2 provides a list of the Gauge Mode menu options.

Table 2-1. Logical Gauge Menu Options

Option	Definition
Frames	Indicates frames received or transmitted by the module or port.
Bytes	Indicates bytes received or transmitted by the module or port.
Recv_Colls	Indicates collisions detected by the module or port while receiving data.
Trans_Colls	Indicates collisions generated by the module or port during transmission.
Total_Errors	Indicates errors detected by the module or port.
Align_Errors	Indicates misaligned packets detected by the module or port.
CRC_Errors	Indicates packets with bad Cyclical Redundancy Checks (CRCs) received by the module or port.
Runts	Indicates runt packets received by the module or port. Runt packets are packets that are less than the standard Ethernet frame of 64 bytes, not including preamble.
Giants	Indicates giant packets received by the module or port. A giant packet exceeds 1518 bytes not including preamble.
OutOfWindow	Indicates collisions out of the standard window (51.2µs) due to a network problem.

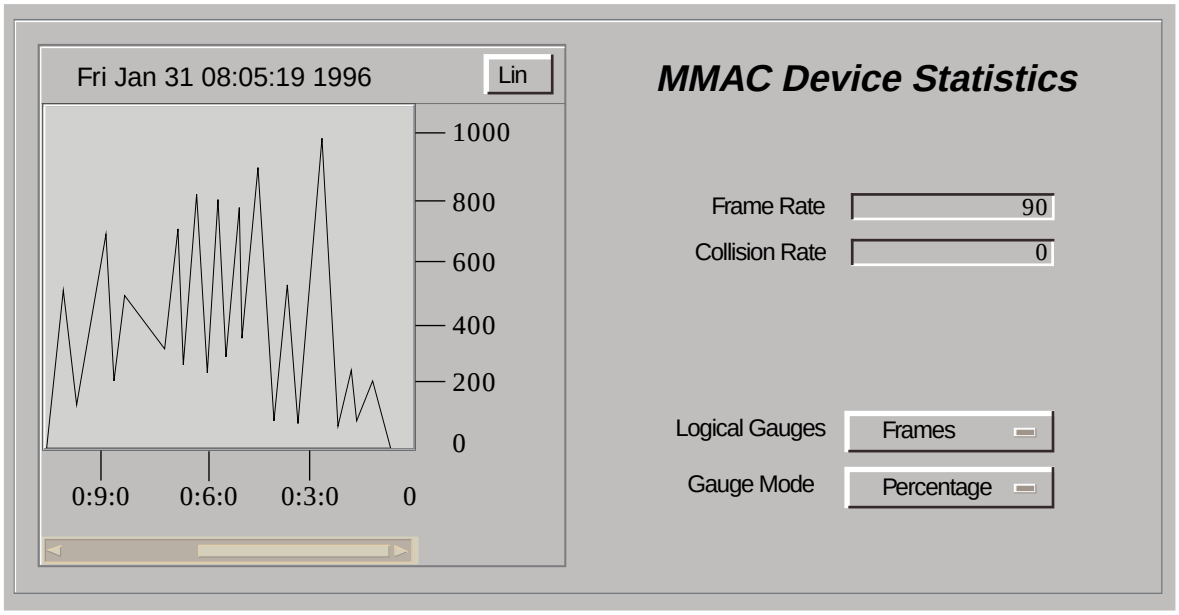
Table 2-2. Gauge Mode Menu Options

Option	Definition
Percentages	Displays the selected statistic as a percentage of the total statistics for the module.
Rates	Displays the selected statistic as a rate over a given time frame.

MMAC Device Statistics Panel

The top portion of the MRXI Device View and the IRM Device View (when accessed by selecting **Physcial** from the Device View submenu) displays the MMAC Device Statistics Panel. This panel displays the Frame Rate and Collision Rate information for the hub. Each rate is color-coded to correspond to the Multi-Attribute Line Graph. Figure 2-3 shows an example of the MMAC Device Statistics Panel.

Figure 2-3. MMAC Device Statistics Panel



Three buttons are available on the MMAC Device Statistics Panel. These buttons allow you to change the statistical presentation of the Multi-Attribute Line Graph or the Logical MIM horizontal bar gauges. The buttons and their functions are as follows:

Log/Lin

This button allows you to toggle between a logarithmic and a linear scale presentation of the multi-attribute line graph.

Logical Gauges

This button allows you to change the statistics represented in the horizontal gauges for the entire MMAC. When you single-click on the Logical Gauges button, a menu appears. The horizontal bar gauge changes color depending on the statistic being represented. The following table provides a list of the menu options and their corresponding gauge color definitions.

Menu Option	Gauge Color	Definition
Frame	Light blue	Indicates the number of frames received or transmitted by the module or port.
Collisions	Yellow	Indicates the total number of collisions detected by the module or port.

Gauge Mode

The Gauge Mode button allows you to change the gauge representation of the selected statistic. Refer to Table 4-2 for the statistic gauge representations.

Logical MIM Representation

The logical MIM representation provides information about the individual modules. For information on the Device View physical MIM representation, see the section titled “Physical MIM Representation.”

The logical MIM representation provides port status labels and double-click zones that provide access to information on each module installed in the hub. The logical MIM representation also provides several double-click zones that function as follows:

Port Number
Indicates the port number. You can double-click on the port number to bring up a notes window.

Port Status
Indicates the status of the port. You can double-click on this zone to bring up the Port Performance view, which is described in Chapter 6. When you have accessed the Logical MIM representation through the Physical MIM representation, double-clicking the Port Status Label opens the Port Administration Status dialog box. If you have write privileges, you can double-click on this zone to change the port administration status from ON to OFF or from OFF to ON. Table 2-3 provides the port status values.

Port Performance
Indicates the frame rate for the port. You can change this display using the Gauge Control Panel, which is described later in this chapter. When you have accessed the Logical MIM representation through the Physical MIM representation, the Port Performance label displays a gauge. The rates or percentages measured by this gauge depend on the setting of the Logical Gauges and Gauge Mode buttons. You can double-click on the Port Performance Gauge to bring up the port performance view, which is described in Chapter6.

Table 2-3. Port Status Values

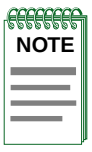
Status	Color Code
NLNK (No link)	Yellow
ON	Green
OFF	Blue
SEG (Segmented)	Red
NSQE	Green (IRBM)
SQE	Green (IRBM)
CL	Blue (IRBM)

You can also access several generic views from the View and Device Menu pulldown menus. These generic views include:

- Configuration View
- Performance View
- Diagnostic View
- Application View
- Display Logical/Physical MIMs

The procedures for displaying these generic views are given in the section titled “Changing MIM Representations” later in this chapter.

Figures 2-4 through 2-6 show some examples of Device Views for Cabletron hubs. The examples show one or more modules displayed in a Logical Representation.



Some modules may not support logical MIM representations. Refer to the specific module's hardware documentation.

Figure 2-4. Logical MIM Representation of IRM2, IRM3, and IRBM Device Views

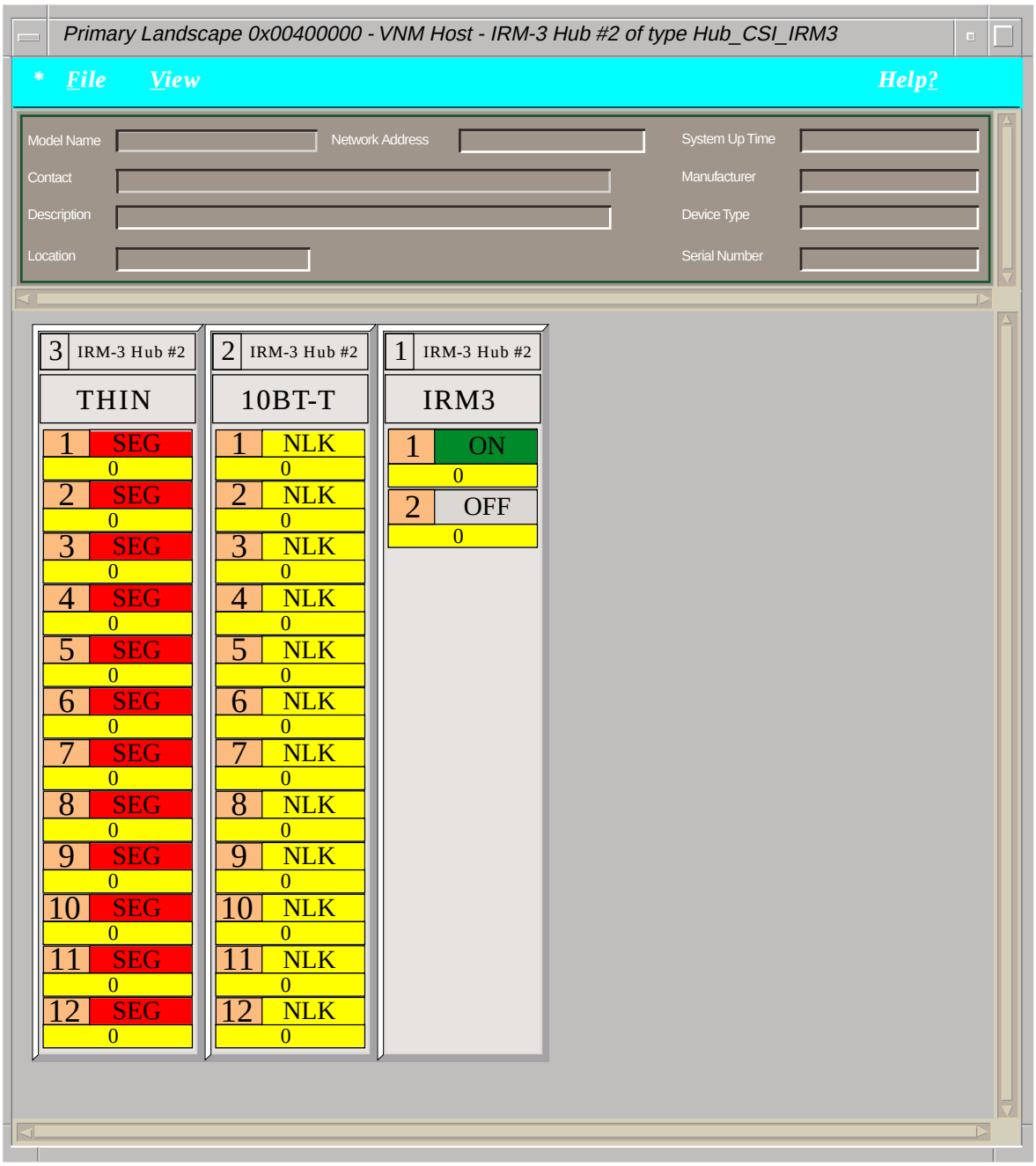


Figure 2-5. Logical MIM Representation of IRM2, IRM3, and IRBM Device View (accessed through the Physical MIM Representation)

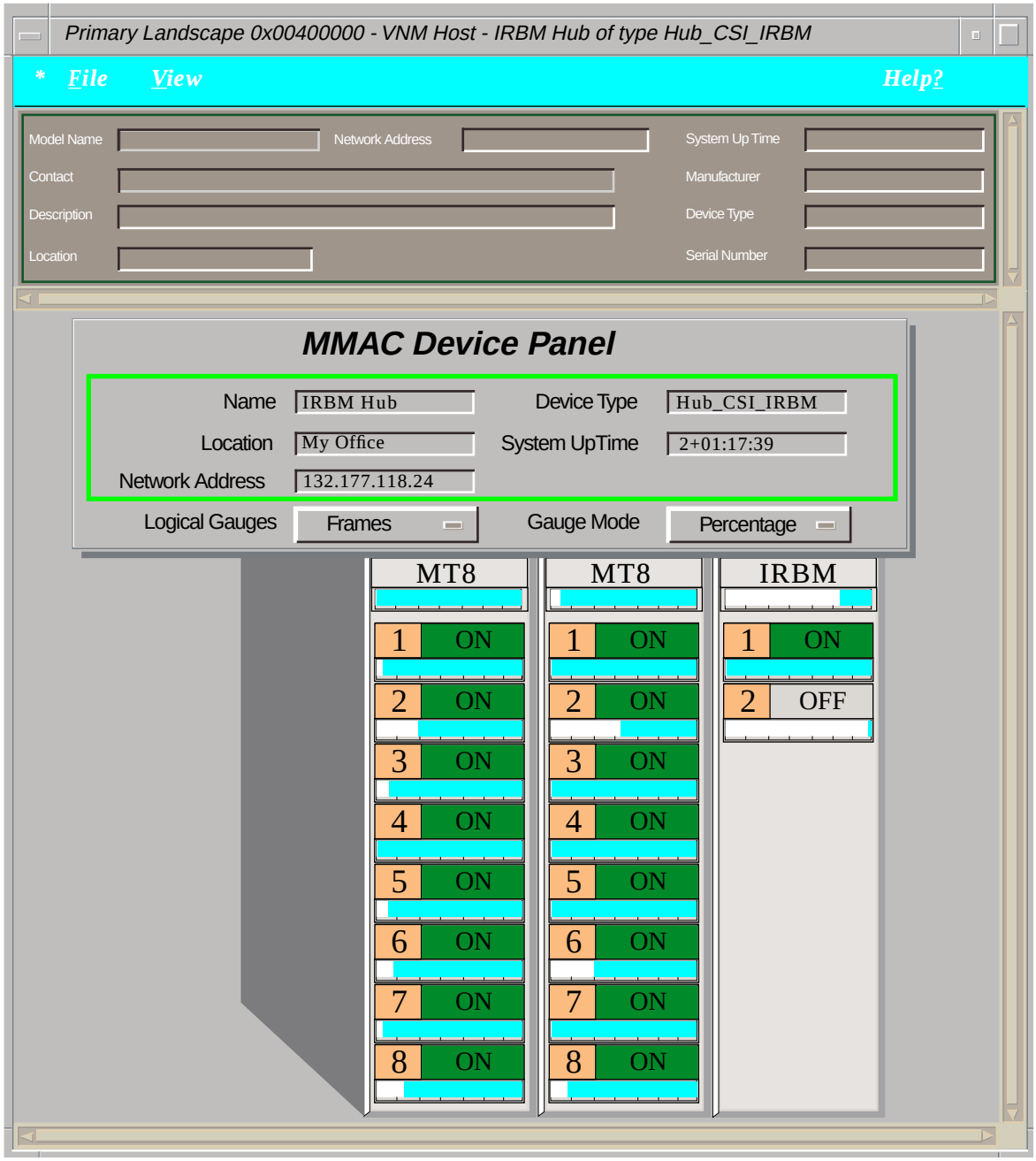
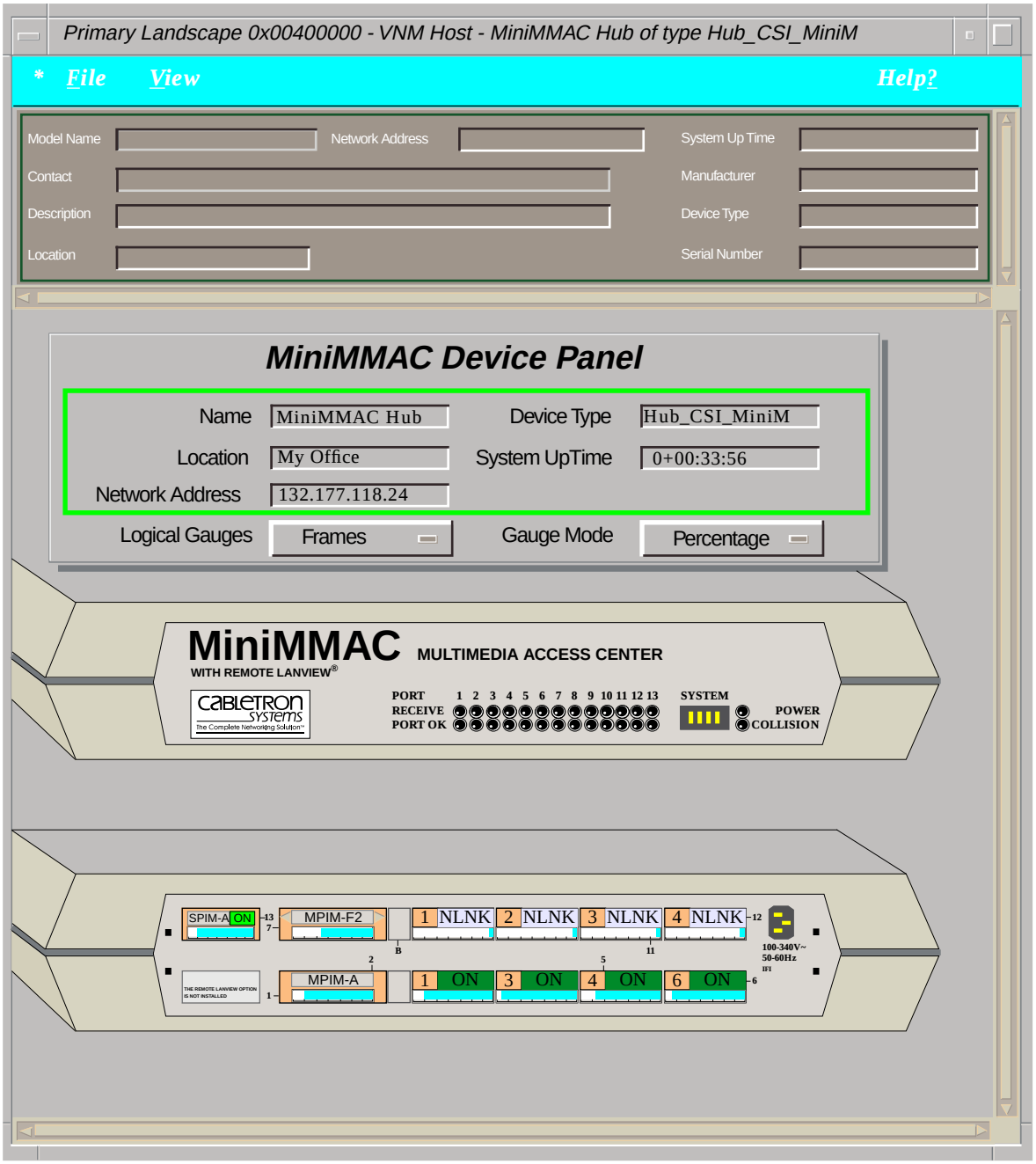


Figure 2-6. Logical MIM Representation of MiniMMAC Device View



Gauge Control Panel

The Gauge Control Panel allows you to change the type of statistical information presented in the Port Performance label of the Logical MIM Representation. To access the Gauge Control Panel, single-click on the right-most module in the hub chassis to highlight it and then select **Gauge Control Panel** from the Icon Subviews menu.

Selected Attribute

This area of the Gauge Control Panel allows you to select the statistical attribute displayed on the Logical Interface Icon's Gauge. The label changes color to reflect the attribute selected. Refer to Table 4-1 for a list of the attribute definitions.

Gauge Mode

This area of the Gauge Control Panel allows you to select the mode presented by the Logical Gauge. Possible selections are Totals, Rates, or Percentages. The Percentages selection represents the percentage of the interface compared to the rest of the interfaces, and is not currently supported. Once you select these attributes, click the Gauge Control Panel **Apply** button to activate the mode represented in the Logical Gauge Label (f).

Gauge Type

This option allows you to select either a numeric or linear representation of the Logical Gauge.

Gauge Control Panel Buttons

The following buttons are available in the Gauge Control Panel:

Apply

Apply the Selected Attribute selection(s) to the Port Performance label. The settings cannot be saved.

Keep Settings

Save the current settings while running SpectroGRAPH.

Reset

Reset back to the last Keep Settings selections.

Close

Close the Gauge Control Panel and reset back to the default attribute of Frame Rate.

Default

Return all settings to their default values.

Physical MIM Representation

The Physical MIM Representation of the hub shows each of the modules installed in the hub along with the current LED status conditions (on or off). The Physical MIM Representation gives you the same access to generic views as the Logical MIM Representation.

Figures 2-7 through 2-9 show some examples of Device Views showing modules in a physical representation.

Figure 2-7. Physical MIM Representation of IRM2, IRM3 and IRBM Device Views

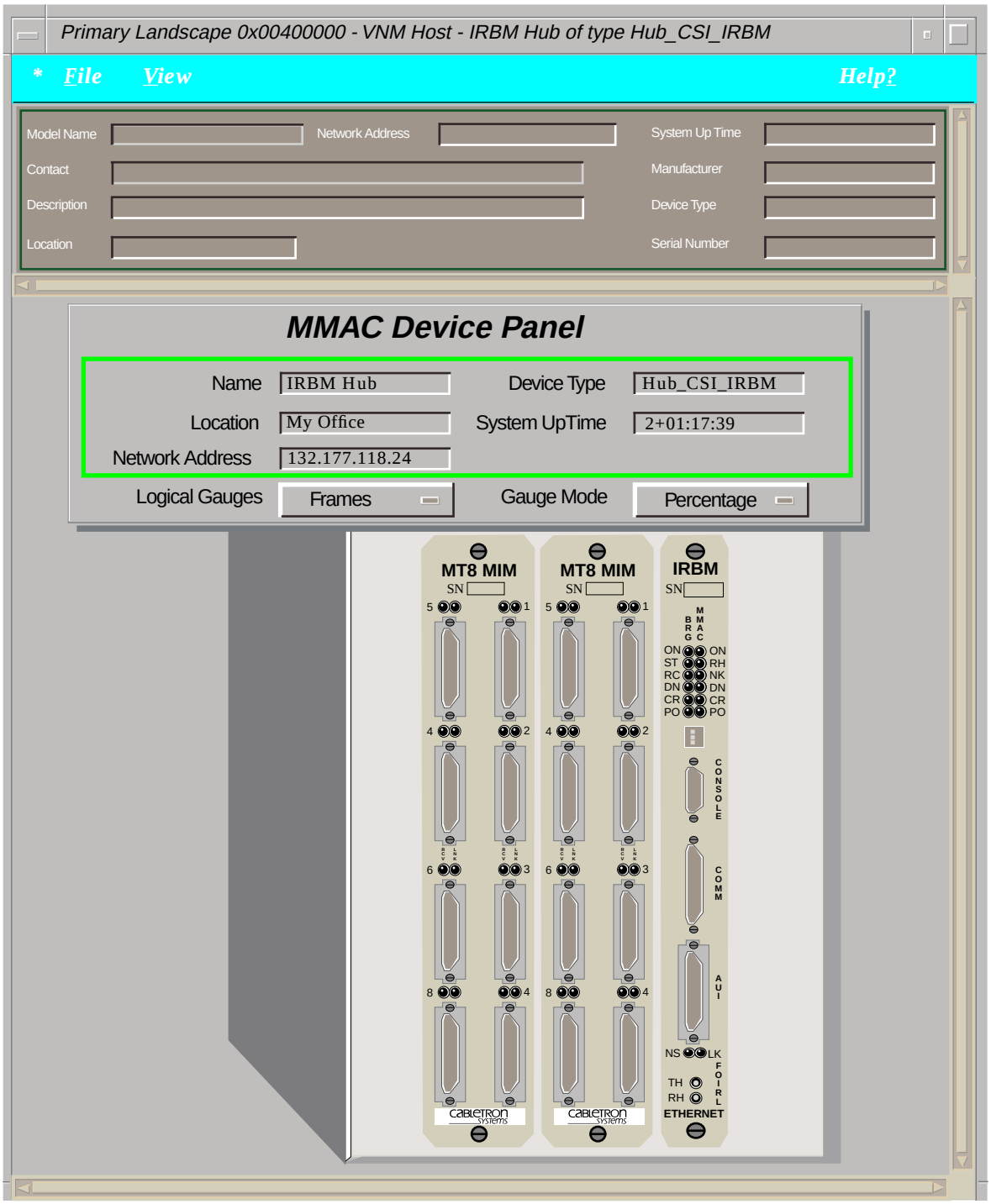
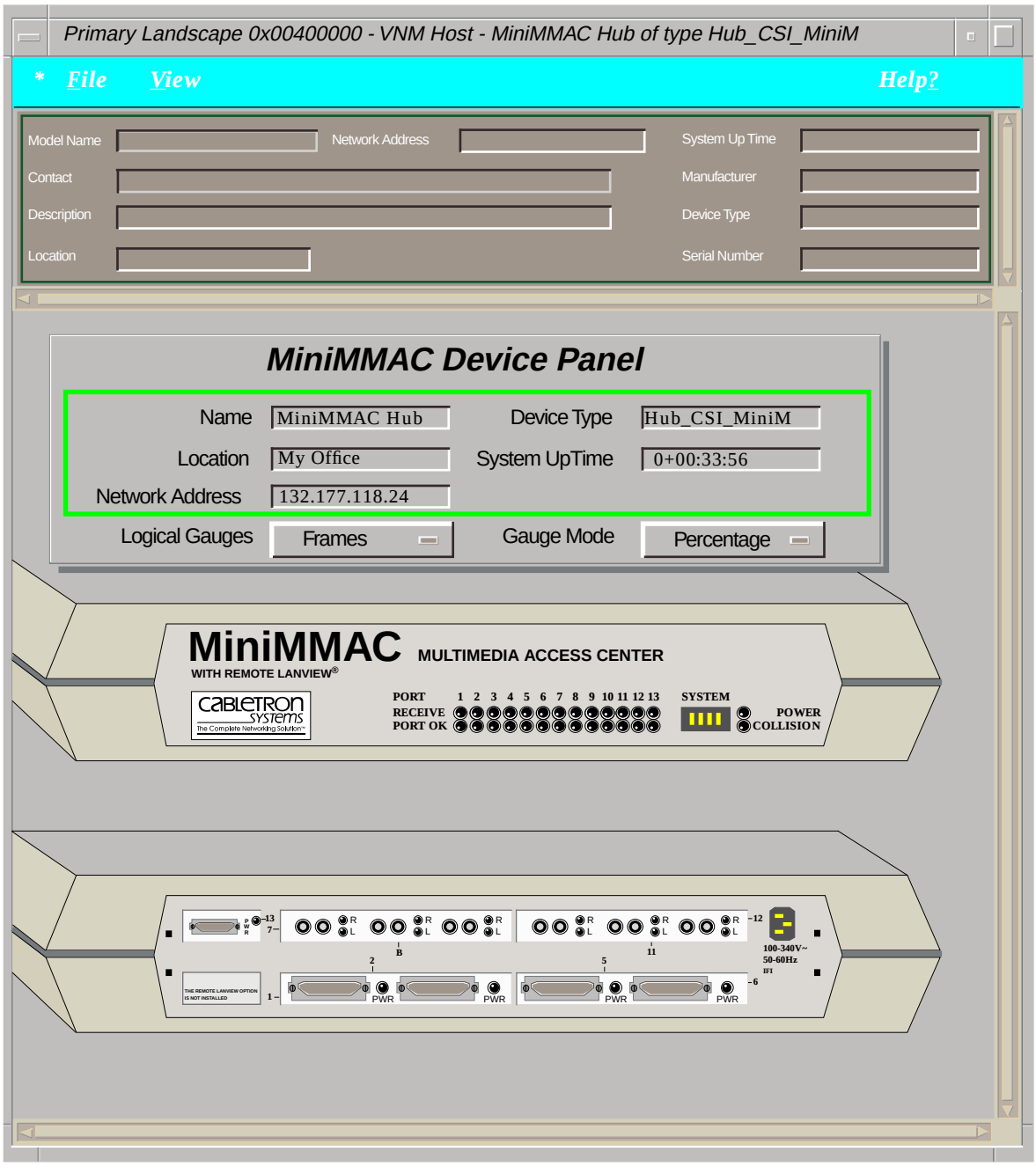


Figure 2-8. Physical MIM Representation of MiniMMAC Device View



Port Source Address View

The Port Source Address View is available from the IRBM, IRM2, IRM3, and MiniMMAC Device Views. This view allows you to display the Source Address information for the port. To open the Port Source Address View, follow these steps:

1. Click on the port icon with the right mouse button to display the port Icon Subviews menu.
2. Select **Port Source Address View** from the this menu.

You can also display the Port Source Address View as follows:

1. Click on the port icon to highlight it.
2. Select **Icon Subviews** from the View menu.
3. Select **Port Source Address View** from the Icon Subviews menu.

The Port Source Address View displays the following information:

Name
The user-defined or default name for the hub.

Network Address
The IP address of the hub.

Device Type
The SPECTRUM model type name of the hub.

Slot/Port Number
The slot number and the port number in this format: 1.1 (Slot number 1, Port number 1).

Source Address Table
The list of Source Addresses for the port. The print button allows you to print out a copy of the table to a printer or a file.

Cabletron Hub LEDs

This section describes the LEDs available on Cabletron Systems intelligent modules for the MMAC hub chassis types and the LEDs available on the front panel of the MRXI and MiniMMAC. You can see these LEDs in the Physical Representation of the Device View. For more specific information on LEDs, refer to the corresponding Cabletron hardware installation manual.

SIRM Hubs

The SIRM supports LEDs that represent operating status, collision rates, error rates, packets transmitted and packets received for the entire hub as follows:

Fail (Error)
This LED is located on the top of the left-hand LED column. It indicates that a problem has been detected with the SIRM.

CLN (Collision Present)
This LED is located on the top of the right-hand LED column and is not labelled in SPECTRUM. It indicates that the SIRM is detecting a collision signal from one of the segments connected to the hub.

Unlabeled 1
This LED is located below the Fail LED. It indicates that the SIRM is receiving network management packets.

Unlabeled 2
This LED is located below the CLN LED. It indicates that the SIRM network management software is on line and functional.

The SIRM modules also contain an RCV and POK LED that are associated with its repeater port and its network management port.

IRM2 Hubs

The IRM2 supports LEDs that represent operating status, collision rates, error rates, packets transmitted, and packets received for the entire hub as follows. The LEDs are listed in top to bottom order, except where otherwise noted.

ER (Error)
This LED indicates that a problem has been detected with the IRM2.

PW (Power)
This LED indicates that the hub is receiving power.

RC (Receive)
This LED indicates the IRM2 is repeating a data packet received from one of the segments connected to the hub chassis.

XM (Transmit)
This LED indicates that the IRM2 is transmitting a data packet out to all other segments connected to the hub chassis.

CL (Collision Present)
This LED indicates the IRM2 is detecting a collision signal from one of the segments connected to the hub chassis.

PO (Port OK)
This LED is lit to indicate that the Network Interface Chip associated with the IRM2's internal repeater port has passed an internal Loop Back Test and is ready for transmission.

P1 (Port 1 OK)
This LED is lit to indicate that the Network Interface Chip associated with the IRM-2's external repeater port has passed an internal Loop Back Test and is ready for transmission.

R1(Receive 1)
This LED is located to the left of the P1 LED. It indicates the IRM2 is repeating a data packet received from the segment connected to the IRM2 AUI Port or Fiber Optic Port.

LN (Link)
This LED is located below the IRM2's AUI port. It indicates that a link has been established between the fiber optic port on the IRM2 and the fiber optic device at the other end of the fiber optic link segment.

IRM3 Hubs

The IRM3 supports LEDs that represent operating status, collision rates, error rates, packets transmitted and packets received for the entire hub as follows:

PW (Power)
This LED is located at the top of the left-hand LED column. It indicates that the IRM3 is receiving power from the MMAC.

OK (Board OK)
This LED is located at the top of the right-hand LED column. If this LED is lit, the module is operating properly. If this LED is not lit, there is an initialization problem. You may need to press the Reset switch.

RC (Receive)
This LED is located below the OK LED. It indicates that the IRM3 is repeating a packet received from a connected segment.

MM (Management)
This LED is located below the PW LED. It indicates that the IRM3 is receiving or transmitting management packets.

CL (Collision)
This LED is located below the MM LED. It indicates that a collision has been detected on a segment.

PO (Port OK)
This LED is located below the RC LED. It indicates that the internal repeater port is OK.

ON (AUI)
This LED is located above the AUI port and to the left of the PW LED. It indicates that the AUI port is the active repeater port.

PW (Power)
This LED is located above the AUI port and to the right of the ON LED. It indicates that the AUI port is receiving power.

ON (FO)
This LED is located below the AUI port and to the left of the LN LED. It indicates that the fiber optic port is the active repeater port.

LNK (Link)
This LED is located below the AUI port and to the right of the ON LED. It indicates that a link has been established between the port and the fiber optic device.

IRBM Hubs

The IRBM is divided into two sets of LEDs. One set, located in the right-hand LED column, is associated with the IRBM's repeating functions and a second set is associated with the IRBM's bridging functions. The repeater set has the same functions as the LEDs described for the IRM2. The bridging set of LEDs is as follows:

ON (On Line)
This LED is located at the top of the left-hand LED column. It indicates that the IRBM's bridging functionality is on line and operational.

ST (Stand By)
This LED is located below the ON LED. It indicates that the IRBM's bridging functionality is in the standby mode and is not capable of forwarding packets.

RC (Receive)
This LED is located below the ST LED. It indicates that the IRBM's bridge port is receiving data packets.

XM (Transmit)
This LED is located below the RC LED. It indicates that the IRBM's bridge port is transmitting packets to the segment connected to it.

CP (Collision Present)
This LED is located below the XM LED. It indicates that a collision is occurring on the segment connected to the IRBM's bridge port. On some IRBMs, this LED may be labelled CP.

PO (Power)
This LED indicates that the hub is receiving power.

MRXI Hubs

The MRXI supports LEDs that represent operating status, collision rates, error rates, packets transmitted and packets received for the entire hub as follows:

POWER
This LED indicates that the hub is receiving power.

LNK (Link)
This LED indicates that a link has been established between the module and the 10BASE-T device at the other end of the twisted pair segment. This LED remains lit as long as the link is maintained. The link LED flashes to indicate that the hub has established a link with reversed polarity.

RCV (Receive)
This LED indicates that the hub is receiving a data packet on that segment.

COLLISION
This LED indicates that a collision is occurring on a system level.

MGMT (Management)
When flashing, this LED indicates that the MRXI's network management software is receiving a packet directed toward management.

FAULT
This LED indicates than an error has been detected by the MRXI's software.

XMT (Transmit)
This LED indicates that the hub is transmitting packets to the segment connected to it.

MiniMMAC Hubs

The MiniMMAC supports LEDs that represent network activity and operating status, as follows:

PORT OK
This LED indicates that the corresponding port is not segmented from the network and is ready to transmit or receive packets from a segment attached to the port.

RECEIVE
This LED indicates that the MiniMMAC is receiving a data packet from the segment attached to the corresponding port.

POWER
This LED indicates that the MiniMMAC is receiving power.

COLLISION
This LED indicates that the MiniMMAC has detected a collision on one of its ports.

FLT (Fault)
This LED is located on the back of the MiniMMAC. It indicates that an error has been detected by the MiniMMAC's software.

XMT (Transmit)
This LED is located on the back of the MiniMMAC. It indicates that the hub is transmitting packets to the segment connected to it.

Changing MIM Representations

You can change the MIM representation of the entire hub or the MIM representation of selected modules in the hub. The following sections describe several methods for changing MIM representations.

Changing MIM Representations on the Entire Hub

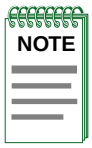
To change the representation of the entire hub Device View, follow these steps:

1. Within the hub Device View, pull down the **Device Menu**.
2. Click on either the **Display Physical MIMs** or **Display Logical MIMs** menu option. The appearance of the hub changes to the selected MIM representation.

Changing MIM Representations on a Single Module Using the Menu Bar

To change the representation of a single module using the menu bar, follow these steps:

1. From the Physical representation of the Device View, move the mouse pointer onto the module. Single-click the left mouse button.
2. Select the **Icon Subviews** from the View menu.
3. Select the **Go Logical** menu option. The selected module changes its appearance and appears to extend from the hub chassis.

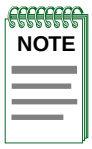


This procedure works only when you are viewing the Physical representation of modules and you want to change to a Logical representation.

Changing MIM Representations on a Single Module Using the Mouse

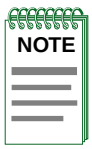
To change the MIM representation of a single module using the mouse, follow these steps:

1. From the Physical representation of the Device View, move the mouse pointer onto the module.



Make sure that the mouse pointer is not on top of, or next to, a gauge or port connector (depending on the initial MIM presentation) otherwise a Port Performance View will open.

2. Double-click the left mouse button. The appearance of the selected module changes. A selected single module appears to extend from the hub chassis.
3. Double-click the left mouse button again to return the module to its original appearance.



This procedure works only when you are viewing the Physical representation of modules and you want to change to a Logical representation.

Chapter 3

Application Views

What is in this Chapter

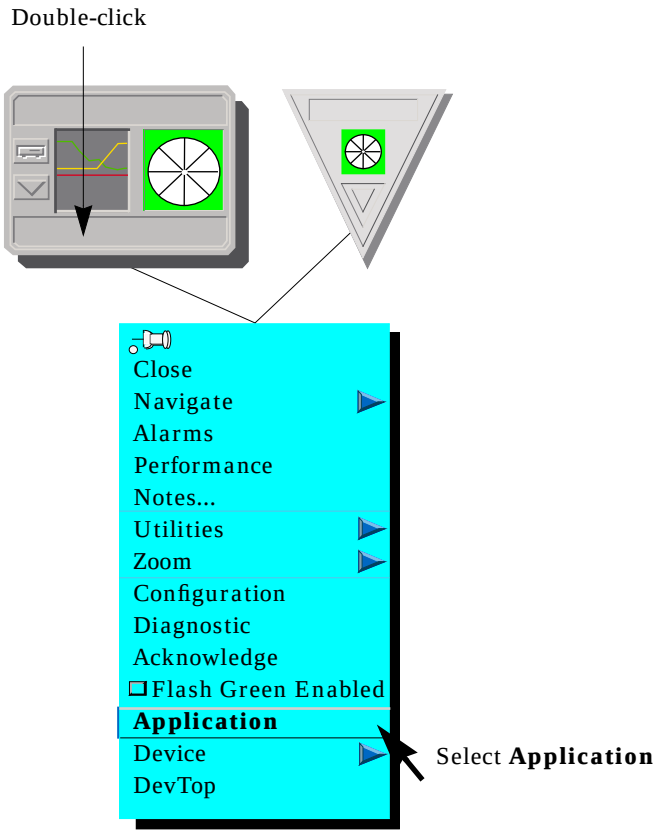
This chapter describes the Cabletron Ethernet Hubs Management Module Application Views. The Application View provides buttons that allow you to access increasingly detailed views of network information, and table entries within views that provide you with double-click zones that navigate to device-specific information views.

Accessing the Application View

You can access the Application View using one of the following methods (refer to Figure):

- Double-click on the Application View label of the icon.
- Highlight the icon and select **Application** from the Icon Subviews menu.

Figure 3-1. Accessing the Application View



Application View Description

The Application View presents protocol related performance and error statistics for a device. Protocols covered include TCP/IP, ICMP, and UDP. The Application View also gives you access to firmware attribute information for the Cabletron hub device. If the hub device is connected to other devices, you can access additional attribute information for the connected devices through the Application View HASPART Panel. The following sections describe the Application Views for each Cabletron Ethernet hub.

The Application Views for Cabletron Ethernet hubs are similar. There are only two differences:

- The IRBM Hub Application View provides an extra button (the Bridge Databases button), which presents bridging statistics on the IRBM hub.

- The IRM3 Hub Application View provides a UPS button, which displays an Uninterruptible Power Supply (UPS) statistics view.

The Application View for the IRBM, IRM2, IRM3, SIRM, MiniMMAC and MRXI hubs contains the following fields and buttons:

Model Name
The user-defined or default name of the model.

Device Name
The ASCII name of the device read from the device firmware.

Network Address
The network IP address of the device (e.g., 132.177.118.24).

System

This button provides access to the SNMP System Group View, which is described later in this chapter.

UDP

This button provides access to the SNMP User Datagram Protocol (UDP) Group View, which is described later in this chapter.

ICMP

This button provides access to the SNMP Internet Control Message Protocol (ICMP) Group View, which is described later in this chapter.

IP

This button provides access to the SNMP Internet Protocol (IP) Group View, which is described later in this chapter.

Bridge Databases

This button, available only in the IRBM Application View, provides access to the IRBM MMAC Bridge Database View. This view is described later in this chapter.

UPS

This button, available only in the IRM3 Application View, provides access to the Uninterruptible Power Supply (UPS) Statistics View. This view is described later in this chapter.

HASPART Panel

The HASPART Panel allows you to access Performance Views for the modules installed in the hub. You can either double-click on the name of the module in the HASPART panel, or you can highlight the name and click on OK. The Performance View for modules is described in Chapter 6.

SNMP System Group View

You can access the SNMP System Group View by clicking on the System button in the Application View. The SNMP System Group View provides the following information:

System Descriptor
A textual description of the hub. This description includes the name of the hardware type and the networking software.

System Up Time
The time since the hub network management software was last reinitialized, displayed in the following format: days+hours:minutes:seconds

System Object Id
The Structure of Management Information (SMI) identification of the network management subsystem contained in the hub.

SNMP UDP Group View

You can access the SNMP UDP Group View by clicking on the UDP button in the Application View. The SNMP UDP Group View provides the following information:

In DataGrams
The total number of UDP datagrams delivered to UDP users.

Out DataGrams
The total number of UDP datagrams sent from this entity.

In Errors
The number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port.

Msgs with no Ports
The total number of received UDP datagrams for which there was no application at the destination port.

SNMP ICMP Group View

You can access the SNMP ICMP Group View by clicking on the ICMP button in the Application View. The SNMP ICMP Group View displays the following information for the hub:

Messages
Displays the total number of ICMP messages that the hub received or attempted to transmit, including messages containing errors.

Errors
Displays the total number of ICMP messages that the hub received containing errors or did not transmit because of errors.

Dest. Unreachable
Displays the total number of ICMP Destination Unreachable messages received or transmitted by the hub. This indicates that a network or host was unreachable, a protocol was not running, or IP datagram fragmentation was necessary but disallowed because the *Don't Fragment* flag was set.

Time Exceeds
Displays the total number of ICMP Time Exceeded messages received or transmitted by the hub. This indicates that an IP datagram was discarded because its TTL had expired or it was in the reassembly queue for too long.

Parameter Problems
Displays the total number of ICMP parameter problem messages received or transmitted by the hub. This indicates an error in an IP datagram's header.

Src Quench Msgs
Displays the total number of ICMP Source Quench messages received or transmitted by the hub. This indicates that a network device is discarding IP datagrams due to a lack of buffer space.

Redirects
Displays the total number of ICMP Redirect messages received by the hub if it is operating as a host. ICMP redirects are transmitted to the host by a gateway informing the host of another gateway on the same IP network that is closer to the desired transmission destination.

More ICMP Stats...

This button allows you to access an additional SNMP ICMP Group View. Table 3-1 provides the information displayed by the second SNMP ICMP Group View.

Table 3-1. SNMP ICMP Group View Information

Field	Definition
Echo	Displays the total number of times the hub received ICMP Echo Request messages from another network device or transmitted them to another network device. Echo Requests test the availability of a device.
Echo Reply	Displays the total number of times the hub received ICMP Echo Reply messages from a network device to which it transmitted an Echo Request or the total number of times the hub transmitted an Echo Reply to a network device from which it received an Echo Request. Echo Replies confirm availability of a network device.
TimeStamp	Displays the total number of times the hub received ICMP TimeStamp Request Messages from another network device or transmitted them to another network device. TimeStamp Requests test the network time delay between devices.
TimeStamp Reply	Displays the total number of times the hub received ICMP TimeStamp Reply messages from a network device to which it transmitted a TimeStamp Request or the total number of times the hub transmitted a TimeStamp Reply to a network device from which it received a TimeStamp Request. TimeStamp Replies confirm the network time delay between devices.
Addr Mask Request	Displays the total number of times the hub received ICMP Address Mask Request Messages from another network device or transmitted them to another network device. Address Mask Requests are transmitted to determine the subnet address mask associated with a local IP network.
Addr Mask Reply	Displays the total number of times the hub received ICMP Address Mask Reply messages from a network device to which it transmitted an Address Mask Request or the total number of times the hub transmitted an Address Mask Reply to a network device from which it received an Address Mask Request. Address Mask Replies determine the subnet address mask of a local IP network.

SNMP IP Group View

You can access the SNMP IP Group View by clicking on the IP button in the Application View. The SNMP IP Group View displays the following information:

IP Forwarding
Displays whether the hub is operating as a gateway or a host.

Default TTL
Displays the default Time-To-Live (TTL) value, in seconds, that is found in the IP header of datagrams if a TTL value was not provided by the transport layer protocol.

In Packets
Displays the total number of datagrams received including those with errors.

In Header Errors
Displays the total number of received datagrams discarded due to invalid addresses in their IP headers (e.g., bad checksum, version number mismatch, time-to-live exceeded, etc.).

In Address Errors
Displays the total number of received datagrams discarded due to invalid addresses in the IP header's destination field. If the hub is not acting as a gateway, this field includes datagrams discarded because the destination address was not a local address.

Forward Datagrams
Displays the total number of received datagrams for which the hub, if acting as a gateway, was not their final destination and an attempt was made to route them to this destination. If the hub is not acting as a gateway, this field displays the number of datagrams successfully routed through the IP Route Table.

Unknown Protocol
Displays the total number of locally addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.

In Discards
Displays the total number of received datagrams discarded even though no errors were encountered to prevent their continued processing. Such datagrams may have been discarded to increase buffer space.

In Deliveries
Displays the total number of datagrams successfully delivered.

IP Add Table

This button allows you to access the IP Address Table. This table provides the hub IP address, interface index, subnet mask and broadcast address. The **Print** button allows you to print out a copy of the table to a printer or a file. Double-clicking on a table entry opens the IP Address Table Information View. Table 3-2 provides the information displayed by the IP Address Table Information View.

Table 3-2. IP Address Table Information View Fields

Field	Definition
IP Address	The IP address of the interface.
Interface	The number of the interface.
Net Mask Addr	The subnet mask address of the interface.
Broadcast Addr	The broadcast address of the interface.

IP Route Table

This button allows you to access the IP Route Table. This table provides a description of each transmission route known by the hub. The **Print** button allows you to print out a copy of the table to a printer or a file. Double-clicking on a table entry opens the IP Route Table Information View. Table 3-3 provides the information displayed by the IP Route Table Information View.

Table 3-3. IP Route Table Information View Fields

Field	Definition
Destination Address	The destination IP address of this route. An address of 0.0.0.0 is considered a default route.
Local Interface	The local interface through which the next hop on this route should be reached.
Next Hop Address	The IP address of the next hop on this route.
Route Type	Specifies the type of route. You may change this by clicking on the button and selecting a new choice. Possible values are: N/A, Other, Invalid, Direct, and Remote.
Primary Metric_1	The primary routing metric for this route. If this metric is not used, its value should be set to -1.

Table 3-3. IP Route Table Information View Fields (Continued)

Field	Definition
Alternate Metric_2	Alternate routing metric for this route. If this metric is not used, its value should be set to -1.
Alternate Metric_3	Alternate routing metric for this route. If this metric is not used, its value should be set to -1.
Alternate Metric_4	Alternate routing metric for this route. If this metric is not used, its value should be set to -1.
Route Protocol	The protocol type of the route.
Route Age	The number of seconds since this route was last updated or determined to be correct.

More IP Stats...

This button allows you to display an additional SNMP IP Group View. Table 3-4 displays the information supplied by the view.

Table 3-4. SNMP IP Group View Information

Field	Definition
Out Packets	Displays the total number of transmission requests from the local IP network received by the hub.
Out Discards	Displays the number of transmitted datagrams discarded even though no errors were encountered to prevent their continued processing. Such datagrams may have been discarded to increase buffer space.
Out No Routes	Displays the total number of IP datagrams discarded because no route could be found to transmit them to their destination address.
Reassembly Timeout	Displays the maximum number of seconds that IP datagram fragments are held by the hub while awaiting reassembly.
Reassembled Fragments	Displays the total number of IP datagram fragments received by the hub that needed to be reassembled.
Reassembly OKs	Displays the total number of IP datagram fragments successfully reassembled.

Table 3-4. SNMP IP Group View Information (Continued)

Field	Definition
Reassembly Fails	Displays the total number of IP datagram fragment reassembly failures detected by the IP reassembly algorithm due to time out, errors, etc.
Fragment OKs	Displays the total number of IP datagrams that have been successfully fragmented by the hub.
Fragment Fails	Displays the total number of IP datagrams that could not be fragmented by the hub because their Don't Fragment flag was set.
Fragment Creates	Displays the total of IP datagram fragments that have been generated by the hub as a result of fragmentation.

IRBM MMAC Bridge Database View

You can access the IRBM MMAC Bridge Database View by clicking on the Bridge Databases button in the IRBM MMAC Application View. The IRBM MMAC Bridge Database View provides the following information:

Model Name
The user-defined or default name of the IRBM model.

Acquired Database

The following fields and buttons appear under the Acquired Database heading:

Total Entries
The total number of entries in the acquired database.

Maximum Entries
The maximum number of entries allowed in the acquired database.

Static Entries
The number of addresses added to the acquired database by you or the network manager.

Static Entry Age Lmt
The length of time allowed for a static entry in the acquired database to be inactive before it is dropped from the database. This time is fixed at zero (0).

Dynamic Entries
The number of entries that have been accumulated in the acquired database through the bridge's learning process.

Dynamic Entry Age Lmt
The length of time allowed for a dynamic entry in the acquired database to be inactive before it is dropped from the database.

Database Entries

This button allows you to erase (set to zero) all entries in the acquired database.

Acquired Database Table

This button allows you to display the IRBM MMAC Acquired Database Table. Table 3-5 provides the information displayed by the table. The **Print** button allows you to print out a copy of the table to a printer or a file. Double-clicking on entries in this table brings up entry-specific information views. The Acquired Database Table View also provides a field in which you can enter a new source address and a button that allows you to select filtering.

To add a new source address to the database, type the address into the New Source Address field below the Acquired Database Table.

Select Filtering

This button allows you to acess an IRBM MMAC Filter Selection View that lets you update filter selections for new source addresses.

Table 3-5. IRBM MMAC Acquired Database Table

Field	Definition
Entry Type	The entry type: Static or Dynamic.
Source Address	The source of this acquired database entry, i.e, the instance.
Port1 Out	The outbound port for packets entering port 1.
Port2 Out	The outbound port for packets entering port 2.

Permanent Database

The following fields and buttons appear under the Permanent Database heading:

Current Entries
The number of entries currently recorded in the bridge's permanent database.

Maximum Entries
The maximum number of entries allowed in the permanent database.

Database Entries

This button allows you to erase (set to zero) all entries in the permanent database.

Permanent Database Table

This button allows you to display the IRBM MMAC Permanent Database Table. Table 3-6 provides the information displayed in the table. The **Print** button allows you to print out a copy of the table to a printer or a file. Double-clicking on entries in this table brings up entry-specific information views. The Permanent Database Table View also provides a field in which you can enter a new source address and a button that allows you to select filtering.

To add a new source address to the database, type the address into the New Source Address field below the Permanent Database Table.

Select Filtering

This button allows you to access an IRBM MMAC Filter Selection View that lets you update filter selections for new source addresses.

Table 3-6. IRBM MMAC Permanent Database Table

Field	Definition
Entry Type	The entry type: Static or Dynamic.
Source Address	The source address of entries allowed in permanent database.
Port1 Out	The outbound port for packets entering port 1.
Port2 Out	The outbound port for packets entering port 2.

UPS Statistics View

You can access the UPS Statistics View by clicking on the UPS button in the IRM3 MMAC Application View. This view provides information on the status of the UPS connected to the IRM3.

The UPS Statistics View contains a multi-attribute line graph that has a scroll bar. You can use this graph to view performance statistics for the UPS.

The UPS Statistics View is similar to a hub Performance View. For more information on how to use this type of view, refer to Chapter 6, *Performance Views*. The UPS Statistics View displays the following information:

Name
The user-defined or default name of the model.

Location
The location of the device as entered in the Creation dialog box when the model was created. If no location has been specified, this field displays the model name of the SPECTRUM location view containing the device.

Network Address
The Internet Protocol (IP) address of the device.

Device Type
The SPECTRUM Model Type (e.g., Hub_CSI_IRM3).

System Up Time
The time, displayed in *days+hours:minutes:seconds*, that the device has been on-line.

Battery Capacity
The current battery capacity of the UPS. Values are displayed as a percentage. Additional fields show the Average and the Peak Value of this quantity.

Battery Volts Out
The battery output voltage. Additional fields show the Average and the Peak Value of this quantity.

AC Line Volts In
The input line voltage. Additional fields show the Average and the Peak Value of this quantity.

UPS Model

This button allows you to select the Model of UPS in use. Possible selections are: 370, 400, 600, 900, 1250, and 2000. The model assignment is not information gathered from the UPS; rather, it is an assignment made from the IRM3. This model type code needs to be assigned after the cable has been connected between the IRM3 and the UPS and before any access to the UPS MIB can take place.

UPS Status
Displays the test states. Possible states include Unit_OK, Unit_Failed, Bad_Battery, No_Recent_Tests, and Unit_In_Test.

UPS Uptime in Hours
The amount of time that the UPS connected to the IRM3 has been running since start-up.

Test

This button allows you to initiate a test cycle on the UPS device. To place the UPS into test mode, click on Initiate. The UPS Status field updates to reflect the current status of the device.

Scroll to Date-Time

This button allows you to view historical data on UPS performance. Click on this button to set the viewing area of the graph to begin at a specified date and time.

Change Time Scale

This button allows you to specify the Y axis time scale for the graph.

Log/Lin

This button allows you to change how the multi-attribute line graph is displayed. You can display the network statistics in Logarithmic or Linear format.

Chapter 4

Configuration Views

What is in this Chapter

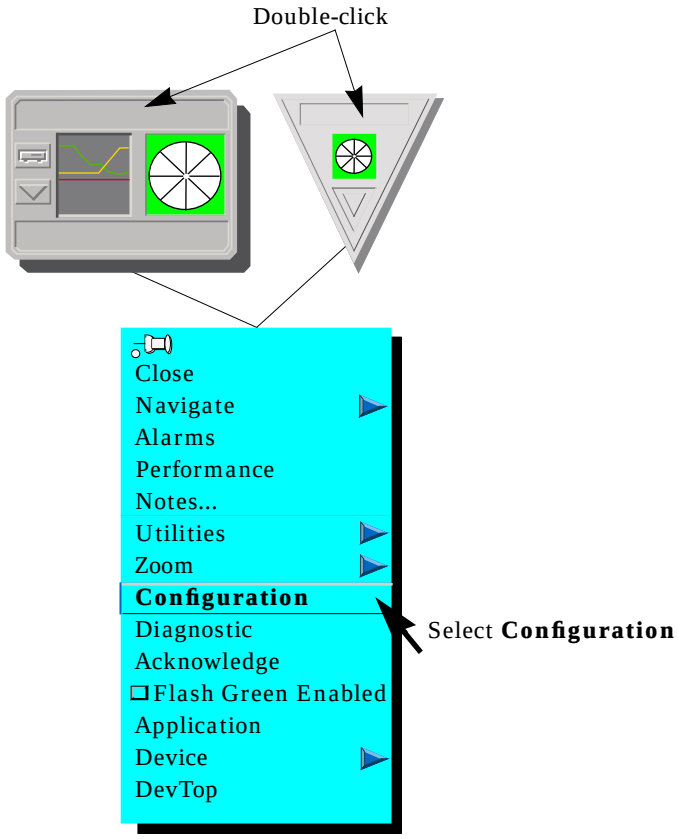
This chapter describes the Configuration View for Cabletron hub devices. The Configuration View provides buttons that allow you to access increasingly detailed views of network information. Table entries within views provide you with double-click zones to navigate to device-specific Information Views.

Accessing the Configuration View

You can access the Configuration View using one of the following methods (refer to Figure):

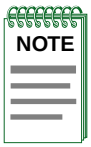
- Double-click on the Configuration View label of the icon.
- Highlight the icon and select **Configuration** from the Icon Subviews menu.

Figure 4-1. Accessing the Configuration View



Configuration View Description

The Configuration View presents model and device network configuration information for Cabletron hubs. It provides information on the device model in the VNM database and the device's firmware configuration. Depending on the device, other configuration information may be available in this view. The Configuration View for Cabletron Ethernet Hubs is divided into two sections: Model Configuration and Device Configuration. The IRBM Configuration View also includes a Bridge Information section. Buttons at the bottom of the view provide access to more detailed configuration information.



SPECTRUM uses the poll time and logging ratio attributes to determine how often it will poll the device and re-read the configuration. The product of these two attributes is the time frame used for polling. Resetting either of these attributes to zero will disable polling. The default is 10 minutes.

Model Configuration

This area of the Configuration View provides the following information:

Model Name
The user-defined or default name of the model.

Network Address
The network IP address (e.g., 132.177.118.24).

Community Name
The Community Name that has been assigned locally to the hub.

Security String
The assigned security string for the device. (Refer to***User Security and User Maintenance***) for information on setting up security in SPECTRUM.)

Polling Interval
The time, in seconds, between SpectroSERVER polls of the network for the hub model.

Poll Log Ratio
The number of SpectroSERVER polls of a device that occur prior to logging the poll results in the database.

Max Pull Boards
The maximum number of board models allowed in the pulled board list.

Polling Status

This button allows you to disable SpectroSERVER polls of a device by setting Polling Status to False. This button is useful in disabling rollup conditions for minor network events such as workstation power-downs. This button will also set all of the models collected by this hub to false. If set to true, models collected by this hub will be set to true.

Monitor Precedence
The monitor precedence value associated with the device. You must explicitly reset this value to a higher value than that of the existing monitoring point to designate this device as the monitoring point.

Device Configuration

This area of the Configuration View provides the following information:

Device Name
The ASCII name of the device that this agent manages.

IP Address
The network IP address (e.g., 132.177.118.24).

PROM Revision
The revision number of the hub firmware.

MMAC Type

The type of MMAC, for example, 3, 5, or 8-slot MMAC (e.g., MMAC3, MMAC5, MMAC8). You supply the MMAC type when you create the icon. The default is MMAC8. This button is not available in the MRXI or the MiniMMAC Configuration Views.

Port Association

This button allows you to select the state of operation of AUI and Fiber ports on the device. This button is not available in the IRM, MRXI, or MiniMMAC Configuration Views. Possible states include some subset of the following states:

AUI_Brdg\Fiber_Off
AUI_Off\Fiber_Brdg
AUI_Brdg\Fiber_Rptr
AUI_Rptr\Fiber_Brdg
AUI_Off\Fiber_Rptr
AUI_Rptr\Fiber_Off

Current Date
A character representation of the current date. This field does not appear in the MRXI Configuration View.

Current Time
The current time of day as measured by the device. This field does not appear in the MRXI Configuration View.

Ports On Out Of
The number of operating ports on the device out of the total number of ports.

Bridge Information

This section of the Configuration View is available only for the IRBM hub. The Configuration View button found in this section accesses the IRBM Bridge Configuration View, which is described later in this chapter.

Configuration View Buttons

This section of the Configuration View contains buttons that provide access to device-specific information views. This section provides the following buttons:

Find Source Address

This button allows you to access the hub's Source Address View, which is described later in this chapter. This button is not available in the IRM or the MRXI Configuration Views.

Source Address Table

This button allows you to access the Device Source Address Table, which is described later in this chapter. This button is not available in the IRM or the MRXI Configuration Views.

Control

This button allows you to access the Control View, which is described later in this chapter.

Config Alarms

This button allows you to access the Configure Alarms View, which is described later in this chapter. This button is not available in the IRM Configuration View.

Redundancy

This button allows you to access the MMAC Redundancy View, which is described later in this chapter. This button is not available in the IRBM or the IRM Configuration Views.

Flash Download

This button allows you to access the Flash DownLoad View. This button is available only in the IRM3, MRXI, and MiniMMAC Configuration Views.

Additional Configuration

This button allows you to access an additional configuration view, which is described later in this chapter. This button is available only in the IRM2 and IRM3 Configuration Views.

Community Table

This button allows you to access the Community and Trap Table View, which is described later in this chapter. This button is available only in the IRM2 and IRM3 Configuration Views.

Source Address View

You can access the Source Address View by clicking on the Find Source Address button in the Configuration View. This view gives you the ability to trace a MAC address to the board and port where the address is detected, and provides the following information. This view is not available for IRM or the MRXI hubs.

Model Name
The user-defined or default name of the model.

Network Address
The network IP address (e.g., 132.177.118.24).

Source Address
User-defined MAC address using the format xx.xx.xx.xx.xx.xx.

Find Board/Port

This button allows you to access the Source Address Board/Port Location View. Figure 4-1 provides the information contained in the view.

Table 4-1. MMAC Source Address Board/Port Location View Fields

Field	Definition
Model Name	The user-defined or default name of the hub model.
Network Address	The network IP address (e.g., 132.177.118.24).
Source Address	User-defined MAC address using the format xx.xx.xx.xx.xx.xx.
Board Number	The board number where the MAC address is detected.
Port Number	The port number where the MAC address is detected.

Device Source Address Table

You can access the Device Source Address Table by clicking on the Source Address Table button in the Configuration View. You can sort, update, and search the table for certain MAC addresses. To display the **Sort** and **Find** options, click on a column heading. To use the Find option, click on the Find button and enter the MAC address to search for. This view provides the following information. This view is not available for the IRM or the MRXI hubs.

Name
The user-defined or default name of the model.

Network Address
The network IP address (e.g., 132.177.118.24).

Device Type
The SPECTRUM model type name of the hub.

System Up Time
The time the hub has been active without failure. The time is displayed in the following format: *days+hours:minutes:seconds*.

Control View

You can access the Control View by clicking the Control button in the Configuration View. This view provides the following information:

Model Name
The user-defined or default name of the hub model. This field does not appear in the IRM Control View.

Device Name
An ASCII name of the device that this agent manages. This field does not appear in the IRM Control View.

Network Address
The network IP address (e.g., 132.177.118.24). This field does not appear in the IRM Control View.

Counters

This button allows you to reset all of the device's counters to 0.

Restart Device

This button allows you to restart the device.

Device Redundancy

This button allows you to reset the redundancy for the entire hub. This button is not available in the IRBM or the IRM Control Views.

Device Discover

This button causes the device and all devices connected to it to send Link-up traps. This button is not available in the IRM, IRM3, or MRXI Control Views.

Source Address Age Time
The number of seconds that a source address is not detected before it is removed from the source address table. This field does not appear in the IRM or MRXI Control Views.

Source Address Traps

This button controls sending of source address related traps. Possible options are TrapsOn and TrapsOff. This button is not available in the IRM or MRXI Control Views.

Source Address Lock

This button indicates whether detection of source addresses on a port that are not in the source address table will cause the port to be turned off. Possible states are LockOff and LockOn. If a port is turned off, an event and alarm will be generated to warn you of this condition. This button is not available in the IRM or MRXI Control Views.

Factory Defaults

This button allows you to reset the device's settings to their factory defaults. This button is only available in the IRM2 and IRM3 Control Views. (Does not affect IP address)

Configure Alarms View

You can access this view by clicking on the Config Alarms button in the Configuration View. This view allows you to set threshold alarms and enable them. The Configure Alarms View is not available for the IRM hub. This view contains the following information:

Model Name
The user-defined or default name of the model.

Device Name
The ASCII name of the device read from the device firmware.

Network Address
The network IP address (e.g., 132.177.118.24).

Traffic Alarms

This button allows you to Enable or Disable detection of Traffic Alarms.

Traffic Threshold
The threshold value within the alarm timebase which, once that number of packets is exceeded, generates a traffic alarm.

Collision Alarms

This button allows you to Enable or Disable detection of device-level Collision Alarms.

Collision Threshold
The threshold value within the alarm timebase which, once that number of collisions per good packet is exceeded, generates a collision alarm. Possible values range from 1 to 15.

Error Alarms

This button allows you to Enable or Disable detection of Error Alarms. This button is not available in the MRXI Configure Alarms View.

Error Threshold
The threshold value within the alarm timebase which, once the percentage of errors per good packet is exceeded, generates an error alarm. This field is not available in the MRXI Configure Alarms View.

Broadcast Alarms

This button allows you to Enable or Disable detection of Broadcast Alarms. This button is available only in the IRM2 and IRM3 Configure Alarms Views.

Broadcast Threshold
The threshold value within the alarm timebase which, once that number of broadcasts received is exceeded, generates a broadcast alarm. This field is available only in the IRM2 and IRM3 Configure Alarms Views.

Time Base
The number of seconds used as the interval for performing all of the rate alarm checks. The minimum is 10 seconds. For example, if the time base is 10 seconds, an alarm will occur only when the specified number of errors occurs within 10 seconds.

Audible Alarm

This button allows you to Enable or Disable the audible alarm in the hub. You must have a community name with Read/Write permission to update this feature. This button is available only in the IRM2 and IRM3 Configure Alarms Views.

Sound Audible Alarm

This button permits a management station to turn off a sounding alarm. Attempting to change this button to the **ON** position may result in a write failure error. You must have a community name with Read/Write permission to update this feature. This button is available only in the IRM2 and IRM3 Configure Alarms Views.

Error Source Table
The Configure Alarms View also displays an Error Source Table, which displays a series of buttons which allow you to select the types of errors that will cause alarms. Table 4-2 provides the definitions of the errors contained in the Error Source Table.

Table 4-2. Error Source Table Fields

Error	Definition
Align	Measures the number of misaligned frames detected by the hub.
Runts	Measures the number of runt frames detected by the hub.
Giants	Measures the number of packets longer than 1,518 bytes detected by the hub.
CRC	Measures the number of packets with bad Cyclic Redundancy Checks (CRCs) detected.
OOW	Measures the number of Out-Of-Window (OOW) collisions detected by the hub.
No_Resource	Measures the number of No_Resource errors detected by the hub.

Redundancy View

You can access the Redundancy View by clicking on the Redundancy button in the Configuration View. This view is not available for the IRBM or the IRM hubs. The Redundancy View provides the following information:

Model Name
The user-defined or default name of the model.

Device Name
An ASCII name of the device that this agent manages.

Maximum Circuits
The maximum number of circuits.

Available Circuits
The number of available circuits. This field does not appear in the IRM3 Redundancy View.

Redundant Poll Interval
The number of seconds between polls for redundancy.

Test Redundant Circuits

This button allows you to test the redundant circuit.

Test Time of Day
The time of day at which the redundant circuits should be tested. This field is not available in the MRXI Redundancy View.

Redundancy Table

This button allows you to display the MMAC Redundancy Table. The Redundancy Table allows you to set up redundant circuit connections between any two or more hubs that have redundant capability in their firmware. For more information on setting up redundant circuits, refer to *Hub Redundancy Management* in this chapter.

You can double-click on any of the circuit names in the Redundancy Table to access the MMAC Redundancy Information View. This view lets you set up redundancy circuits. Table 4-3 provides the information contained in the view.

Table 4-3. MMAC Redundancy Information View Fields

Field	Definition
Circuit Name	The name of the indicated circuit.
Retry Count	The number of unanswered polls allowed for the indicated circuit before the current connection is declared bad.
Bd/Port Combination	The number of board/port combinations associated with the indicated circuit.
MAC Address Add (IRM2, MRXI, MiniMMAC)	Adds the Ethernet address to the polling list for the indicated circuit.
IP Address Add (IRM3)	Adds the IP address to the polling list for the indicated circuit.
Number of Addresses	The number of addresses associated with the indicated circuit.
Circuit Enable	Enables or disables the indicated circuit.
Circuit Number	The number from the circuit names in the Redundancy table (e.g., Circuit 04).
Board Port Instance	The board number and port number that the redundant circuit is connected to. For example, 3.6 is board 3, port 6.
Port Circuit Status	The current state of this port in the redundant circuit.
Port Circuit Type	The type of port this port is in the redundant circuit.

Panels at the bottom of the Redundancy Information View provide additional information. For the IRM2, MRXI, and MiniMMAC, the panels are Board Member, Port Member, and Redundancy Table. For the IRM3, there are two Redundancy Table panels. Double-clicking on any of the entries in the Polled Address list of the Redundancy Table for the IRM2, MRXI, or MiniMMAC opens the Address Display View. The Address Display View has two fields: **Polled Address**, which is the MAC address, and **Instance**, which is the board number and port number associated with the address. For example, 1.1 is board 1, port 1. The IRM3 has no Address Display View.

The Redundancy Information View also provides the following two buttons:

Address Delete View

The **Address Delete View** button displays the Address Delete View. This view contains the Redundancy Table and a field. Table 4-4 provides the information contained in the view.

Table 4-4. Address Delete View Fields

Field	Definition
MAC Address Delete (IRM2), MRXI, MiniMMAC	Removes the Ethernet address from the polling list for the indicated circuit. You enter a MAC address in this field.
IP Address Delete (IRM3)	Removes the IP address from the polling list for the indicated circuit. You enter an IP address in this field.

The IRM2, MRXI, and MiniMMAC Address Delete Views allow you to double-click on the Polled Addresses in the Redundancy Table to access an Address Display View. The Address Display View has two fields: **Polled Address**, which is the MAC address, and **Instance**, which is the board number and port number associated with the address. For example, 1.1 is board 1, port 1.

Reset Circuit View

This button allows you to access the Circuit Reset View. This view allows you to reset a single Redundancy circuit. Table 4-5 provides the information contained in the view.

Table 4-5. Circuit Reset View Fields

Field	Definition
Circuit Number	The circuit number to be reset.
Circuit Reset	Resets the indicated circuit.

Flash Download View

You can access the Flash Download View by clicking on the Flash Download button in the Configuration View. This view is available only for the IRM3, the MRXI, and the MiniMMAC hubs. The Flash Download View displays the following information:

Model Name
The user-defined or default name of the hub model.

Network Address
The network IP address (e.g., 132.177.118.24).

Last Image Filename
The filename of the last image to be loaded into flash memory successfully.

Last Server IP Address
The IP address of the file server used to load the image presently in flash memory.

Flash Size in Bytes
The size in bytes of the flash memory contained in the module.

Flash Count
The number of times that the flash memory has been reprogrammed. This value is initialized to 1 upon initial power up of the device.

Firmware Base Address
The starting address of the firmware in RAM.

Firmware Top Address
The ending address of the firmware in RAM.

Firmware Start Address
The jump address of the firmware in RAM as established by the boot process.

DownLoad Software

This button allows you to access the DownLoad Software View. This view allows you to upgrade the hub's firmware from a TFTP Boot Server. Table 4-6describes the fields provided by this view.

Table 4-6. DownLoad Software View Field Definitions

Field	Definition
Model Name	The user-defined or default name of the hub model.
Network Address	The network IP address (e.g., 132.177.118.24).

Table 4-6. DownLoad Software View Field Definitions (Continued)

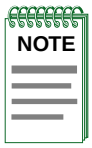
Field	Definition
Force On Boot	When set to Server, the boot software will attempt to boot from the TFTP boot server. If no boot is found and flash memory is valid, the device will boot from the flash memory regardless of the setting for this variable. When set to Flash_Memory, the device will boot from flash memory.
TFTP Request Host	A user-defined IP address of the server to be used when the firmware is to be loaded over the network.
TFTP Request FileName	A user-defined filename that is requested of the server when the firmware is to be loaded over the network.
RAM To Flash	When set to Commit, the boot software will erase the flash memory, compress the download code, and save the compressed image into flash memory.
Cold Boot	When set to Initiate, the boot software will initiate a reboot of the system. All MIB variables in this view used to control the exact nature of the download should be set prior to the setting of this variable.

Additional Configuration View

You can access the Additional Configuration View by clicking the Additional Configuration button in the Configuration View. In addition to the model name and network address, this view shows three panels, each with eight slot designations. The panels are labeled Ethernet MIMs, Token Ring MIMs, and FDDI MIMs. When the button next to a slot number is depressed, it means that a MIM of that type is installed in the slot. This view is available only for the IRM2 and IRM3 hubs.

Community and Trap Table

You can access the Community and Trap Table by clicking the Community Table in the Configuration View. The **Sort** buttons allow you to alter the display format of the table. The **Find** button allows you to search the name column to locate a specific community name. Clicking on a column heading allows you to access the **Sort** and **Find** Buttons. The **Update** button allows you to update the contents of the table. Double-clicking on any entry in the Community and Trap Table opens the Community Table Detail View specific to the selected table entry. This view allows you to modify the statistics and parameters for the device. Table 4-7 provides definitions of the Community Table Detail View. The Community and Trap Table is available only for the IRM2 and IRM3 hubs. This table provides the following information:



You must have Administrative Privileges to access the Community and Trap Table View and all subviews. Without superuser access you cannot access or change any of the information displayed in this view.

Name
Displays the community name.

Access
Displays the user access permissions.

Traps
Displays the current status of traps. Possible values are enabled or disabled.

IP Addr
Displays the trap host IP address. This is the IP address traps are sent to if they are enabled.

Table 4-7. Community Table Detail View Field Definitions

Field	Definition
Device Name	The name of the physical device.
Model Name	The user-defined or default name of the hub model.
Community String	The current community name.
Access	The user access permissions for the community name. Possible values are: none, readonly, readwrite, and superuser.
Trap Host	The IP address of the host to which traps will be sent.
Traps	Toggles trap generation. Possible values are: enabled or disabled.

Bridge Configuration View

You can access the Bridge Configuration View by clicking on the Configuration View button in the Bridge Information section of the Configuration View. This view is available only for the IRBM hub. The IRBM Bridge Configuration View is divided into two sections: Model Configuration and Device Configuration. In addition, buttons at the bottom of the screen provide access to more detailed informational views.

Model Configuration

This section of the Bridge Configuration View provides the following information:

Model Name
The user-defined or default model name.

Network Address
The network IP address (e.g., 132.177.118.24).

Community Name
The Community Name that has been assigned locally to the hub.

Security String
The IRBM's assigned security string. (Refer to ***User Security and User Maintenance*** for information on setting up security in SPECTRUM.)

Polling Interval
The time, in seconds, between SpectroSERVER polls of the network for the hub model.

Poll Log Ratio
The number of SpectroSERVER polls of a device that occur prior to logging the poll results in the database.

Device Configuration

This section of the Bridge Configuration View provides the following information:

Bridge Name
The user-defined name of the bridge. The default is ETHERNET BRIDGE.

Bridge Type
The type of bridge (e.g., NB25E, IRBM, or NB20E).

Bridge Location
The user-defined name to indicate the location of the bridge on the network. The default location is LOCAL.

Firmware Version
The release version of the firmware installed in the bridge.

Number of Ports
The number of ports present on the bridge.

Configuration View Buttons

This section of the Bridge Configuration View contains buttons that provide access to more specific information views. This section provides the following buttons:

Bridge/Root Information

This button allows you to access the Bridge/Root Information View. Table 4-8 provides the information contained in the view.

Table 4-8. SNMP ICMP Group View Fields

Field	Definition
Model Name	The user-defined or default name of the model.
Root Bridge ID	The unique identifier of the bridge recorded as the root.
Root Port	The port identifier for the port that provides the lowest cost path to the root (i.e., that port for which the sum of values of the designated cost and path cost parameters held for the port is lowest).
Root Cost	The cost of the path to the root from this bridge.
Root Brdg Max Age	The value of the Max Age parameter when the bridge is the root or is attempting to become the root. A time of 6 to 40 seconds is allowed. The default is 20 seconds.

Additional Bridge Information

This button allows you to access the Additional Bridge Information View. Table 4-9 provides the information contained in the view.

Table 4-9. Additional Bridge Information View Fields

Field	Definition
Model Name	The user-defined name or default name of the model.
Bridge Priority	The part of the bridge address that contains the identifier used in the spanning tree for priority comparisons. The allowed range is 0 through FFFF. The default is 8000.
Hold Time	The minimum time period elapsing between the transmission of configuration BPDUs through a given bridge port.
Protocol Max Age	The maximum age of received protocol information before it is discarded.
Trap Type Obj ID	Contains the object identifier of the first VarBinding in the last trap generated by the bridge.

Bridge Setup Information

This button allows you to access the Setup Information View. Table 4-10 provides the information contained in the view.

Table 4-10. Setup Information View Fields

Field	Definition
Model Name	The user-defined name or default of the model.
Bridge ID	The unique identifier of the bridge. The first two bytes of the identifier are the bridge priority and the last six bytes are the Ethernet address.
Switch Settings	The current switch settings read from the bridge hardware.
Number of Restarts	The number of times the bridge has been powered up or restarted.
Type of Filtering	The type of filtering to be performed by the bridge. The default is IEEE 802.1.
STA Protocol	The spanning tree algorithm under which the bridge is operating. Selections include: 802.1-compliant spanning tree algorithm environment (802.1), DEC LAN Bridge 100 environment (DEC) and without spanning tree algorithm enabled (None). The default is 802.1.

Topology Information

This button allows you to access the Topology Information View. Table 4-11 provides the information contained in the view.

Table 4-11. Topology Information View Table Fields

Field	Definition
Model Name	The user-defined or default name of the model.
Time Topology Change	The time in seconds that has elapsed since the bridge's Topology Change Flag last recorded the value of a topology change.
Topology Change	Indicates if a bridge Topology change is in progress.
Topology Change Count	The number of times the bridge's Topology Change Flag has been changed since the bridge was powered up or initialized.

Fwd Dly & Hello Information

This button allows you to access the Forward Delay & Hello Information View. Table 4-12 provides the information contained in the view.

Table 4-12. Forward Delay & Hello Information View Fields

Field	Definition
Model Name	The user-defined or default name of the model.
Forward Delay Parm	The value of the forward delay parameters when the bridge is the root or attempting to become root. A time of 4 to 30 seconds is allowed.
Forward Delay	The time spent in the listening state while moving from the blocking state to the learning state, or the time spent in the learning state while moving from the listening state to the forwarding state.
Hello Time Parm	The value of the Hello Time parameter when the bridge is the root or is attempting to become the root. A time of 1 to 10 seconds is allowed. The default is 2 seconds.
Hello Time	The time interval between the transmission of Configuration BPDUs by a bridge that is attempting to become the root.

Control

This button allows you to access the IRBM Bridge Control View. Table 4-13 provides the information contained in the view.

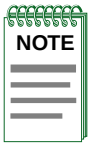
Table 4-13. IRBM Bridge Control View Fields

Field	Definition
Current Bridge Status	The status of the bridge, for example, ON-LINE, STAND BY, or DISABLED.
Bridge Status Control	Enables or disables the bridge.
Bridge Restart	Forces the bridge to undergo a software reset.
Bridge Settings	Restores the bridge settings to their default values.

Hub Redundancy Management

The hub redundancy management features described in this section include information specific to the following Cabletron hub devices:

- IRM2
- IRM3
- MRXI
- MiniMMAC



The SIRM and the IRBM hub devices do not have redundant circuit compatibility available in their device firmware.

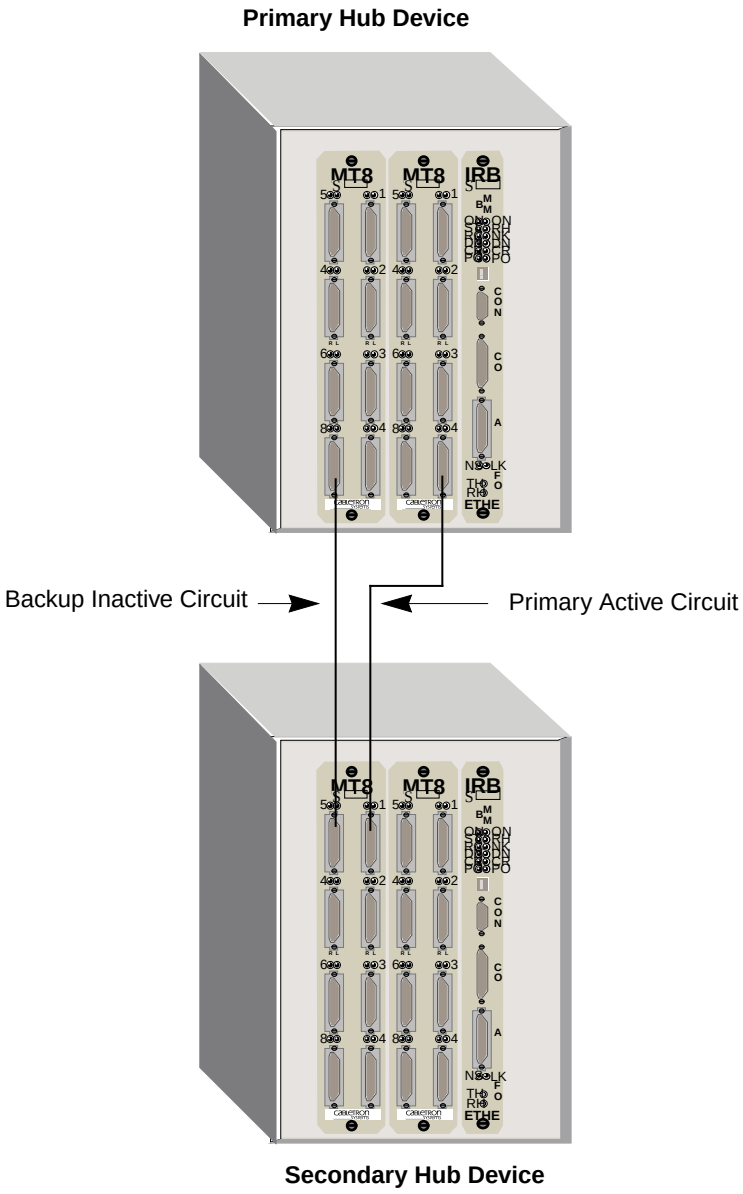
SPECTRUM allows redundant “circuit” connections between any two or more hub devices that have redundant capability in their firmware. A circuit is represented by a cable connection from one module port on a primary hub device to one or more module ports on secondary hub devices. The cable connections can use any valid cable type, including thin-net, coaxial, fiber optic, or AUI. The terminating connectors used depend on the type of cable connecting the module ports.

Any two or more cable connections create a complete circular “circuit” pathway between the two devices. One pathway is always set up as primary and the others as secondary. The secondary circuit becomes active if the

primary pathway fails. This allows the primary hub device to repeat data packet information on an alternative module port if a problem exists on the primary port.

Although circuit connections typically occur between devices in the same room, the circuit connections can also occur over longer distances between floors or buildings (with the proper FDDI cables and associated modules). Refer to Figure 4-2 for an illustration of a typical redundant cable circuit connection between two redundant hub devices.

Figure 4-2. Redundantly Connected Hub Device



The following example illustrates redundancy between hubs.

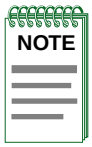
Say that you have used redundant circuit management to create a connection between the Accounting Department and the Payroll Department of your company. These departments are on the same floor and have two repeaters between them on an Ethernet network. Suppose a system overload occurred

when you were sending direct deposit payroll information from the Payroll Department to the Accounting Department the night before payday. This could be a disastrous situation.

Redundant circuit management would prevent this situation by allowing the primary hub device to automatically switch from the primary circuit to the secondary circuit. The backup circuit would become active and continue sending data over its cable connection. Redundancy becomes especially important for unattended night time batch jobs, or for jobs where a communications problem could seriously interfere with normal business operations.

Setting Redundant Circuits

The following procedure uses an IRM2 hub device as an example. However, this procedure can also be used with MRXI and MiniMMAC hubs as primary devices. The secondary device can be any hub device with redundancy capability (e.g., MRXI, MiniMMAC, IRM2, IRM3). This procedure may also be used to configure multiple secondary hub devices.



These instructions assume that you have a primary MMAC hub module port physically attached to a secondary MMAC hub module port. Both these modules must have redundant circuit capability. The backup port connection cannot be completed until you have set up the active connection in SPECTRUM. For convenience, you should also prepare a list of secondary hub Ethernet addresses before beginning this procedure.
Also, SNMP devices require the use of the Community Name attribute. The SPECTRUM default of "public" grants read-only privileges, which allow you to view device attributes, but not modify them. Since setting up redundancy requires modifying the device attributes, you should set the Community Name to "ctron," which grants read/write privileges. You can set the Community Name when you create the device or change it in the Device Configuration View.

To set redundant circuits for the devices modeled in SPECTRUM, follow these steps:

1. Click on the icon to select it.
2. If contact has been established and the icon is green, bring up the Configuration View.
3. From the Configuration View menu, click on the **Redundancy** button. In the Redundancy View window, click on **Redundancy Table**.

4. Choose any circuit from the Circuit Name list that appears by double-clicking on it. A Redundancy Information View window appears.
5. Set the Retry Count to any value between 1 and 10, inclusive.
6. For any of the devices other than the IRM-3 enter the Ethernet address of the secondary hub device, which will be polled, in the MAC Address Add field. This field should allow you to enter the address in any of the following formats (where X is any hexadecimal value from 0 to F):

   XX.XX.XX.XX.XX.XX
   XX:XX:XX:XX:XX:XX
   XX-XX-XX-XX-XX-XX

For the IRM-3, enter the IP address of the secondary hub device, which will be polled, in the IP Address Add field. You should enter this address in the format NNN.NNN.NNN.NNN (where NNN is a decimal number from 0 to 255).

7. Enter the Board Port Instance for the primary connection. For example, if the primary connection is on port 4 of a module in the device's fifth slot, the Board Port Instance would be 5.4. (Modules on these devices start from 1 and can go up to 8 depending on the MMAC type.)
8. Change the Port Circuit Status to **Active** and the Port Circuit Type to **Primary**.
9. Choose **Save All Changes** from the File menu. This will save the circuit configuration you entered.
10. Now change the Board Port Instance to represent the backup connection. Change the Port Circuit Status to **Inactive** and the Port Circuit Type to **Backup**.
11. Choose **Save All Changes** from the File menu. This will save the circuit configuration you entered for the backup connection.
12. Close this Redundancy Information View and then bring it up again. Verify that the redundancy setup information is present and correct.
13. Click on the **Circuit Enable** field and choose **Enable**. This enables the circuit that was created on the primary hub device. Choose **Save All Changes** from the File menu.
14. Now physically connect the secondary circuit between the two hub devices. To test the redundancy, disconnect the primary circuit and make sure the backup circuit becomes active.

Chapter 5

Diagnostic Views

What is in this Chapter

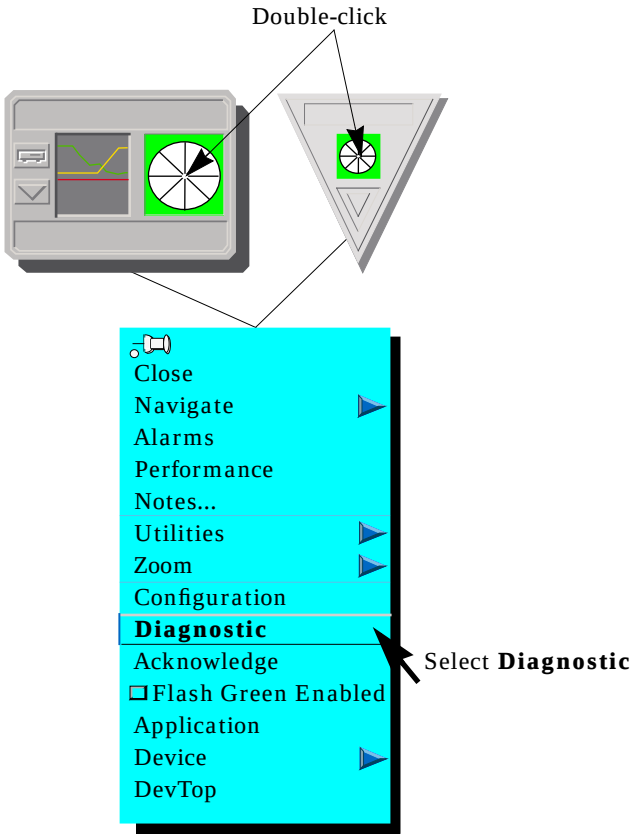
This chapter describes the Diagnostic View for Cabletron hub devices. The Diagnostic View provides a complete breakdown of network errors gathered by the Cabletron hub on a network segment. Each error attribute is summarized over two intervals: the Total number counted since the device was powered on; and the Last Poll, which is the number counted since the last poll.

Accessing the Diagnostic View

You can access the Diagnostic View using one of the following methods (refer to Figure):

- Double-click on the Diagnostic View label of the icon.
- Highlight the icon and select **Diagnostic** from the Icon Subviews menu.

Figure 5-1. Accessing the Diagnostic View



NOTE

There is no Diagnostic View for the IRBM, IRM2, IRM3, or MiniMMAC hub. Following the procedure to open the Diagnostic View will open the hub Performance View instead.

Diagnostic View Description

The Cabletron hub Diagnostic View provides the following navigational features:

- Buttons allow you to access increasingly detailed views of network information, to select a graphical representation for the error attributes, and to bring up the Events and Alarms Log Views.

- Table entries within views provide double-click zones, which navigate you to device-specific Information Views.

SIRM Hub

The Cabletron SIRM MMAC Diagnostic View provides the following information:

Model Name
The user-defined or default name of the model.

Device Name
The ASCII name of the device read from the device firmware.

Network Address
The network IP address (e.g., 132.177.118.24).

Total
The total number of collisions counted since the device was powered on.

Last Poll
The number of collisions counted since the last poll.

Total Collisions

This button displays a graph showing SIRM MMAC Hub Collisions. The graph has a scroll bar that allows you to view the history of the hub collision statistics. The bottom axis of the graph shows the time in seconds broken into five minute intervals. The right axis shows the rate of collisions that occurred in the last polling interval. There is also a small box on the graph that shows the rate of collisions counted during that last polling interval.

Events

This button allows you to access the Event Log containing a list of network events specific to the hub. You can scroll through the Event Log using the menu or the scroll bars.

Alarms

This button allows you to access the IRM MMAC Alarms View. The Alarms View displays a list of current network alarms. For information on how to use the Alarms View, refer to ***Enterprise Alarm Manager***.

MRXI Hubs

The Cabletron MRXI Hub Diagnostic View provides the following information:

Model Name
The user-defined or default name of the model.

Device Name
The ASCII name of the device read from the device firmware.

Total (Receive Collisions)
The total number of receive collisions detected by the MRXI Hub.

Total (Transmit Collisions)
The total number of transmit collisions detected by the MRXI Hub.

Last Poll (Transmit Collisions)
The number of transmit collisions detected by the MRXI Hub since SPECTRUM last polled the device.

Last Poll (Receive Collisions)
The number of receive collisions detected by the MRXI Hub since SPECTRUM last polled the device.

Receive Collisions

This button allows you to access a graph showing MRXI Hub Receive Collisions. The graph has a scroll bar that allows you to view the history of the hub collision statistics. The bottom axis of the graph shows the time in seconds broken into five minute intervals. The right axis shows the rate of collisions that occurred in the last polling interval. There is also a small box on the graph that shows the rate of collisions counted during that last polling interval.

Transmit Collisions

This button allows you to access a graph showing MRXI Hub Transmit Collisions. The graph has a scroll bar that allows you to view the history of the hub collision statistics. The bottom axis of the graph shows the time in seconds broken into five minute intervals. The right axis shows the rate of collisions that occurred in the last polling interval. There is also a small box on the graph that shows the rate of collisions counted during that last polling interval.

Events

This button allows you to access the Event Log containing a list of network events specific to the hub. You can scroll through the Event Log using the menu or the scroll bars.

Alarms

This button displays the MRXI MMAC Alarms View. The Alarms View displays a list of current network alarms. For information on how to use the Alarms View, refer to the ***SPECTRUM Opertator's Reference***.

Chapter 6

Performance Views

What is in this Chapter

This chapter describes the Device, MIM, and Port Performance Views available for Cabletron hub devices.

- The Device Performance View provides traffic data attributes for the traffic on the network segments connected to the Cabletron hub device.
- The MIM Performance View for Cabletron Ethernet hubs displays network statistics and information for each module installed in a hub chassis.
- The Port Performance View for Cabletron Ethernet hubs displays network statistics and information for individual ports on a MIM board.

These views summarize traffic flow (in bytes and packets), and gives a statistical and graphical breakdown of traffic by packet size.

Device Performance View

The Cabletron hub Device Performance View provides the following navigational features:

- Buttons allow you to access increasingly detailed views of network information, and select graphical representations for each traffic attribute.
- Table entries within views provide double-click zones which navigate you to device-specific Information Views.

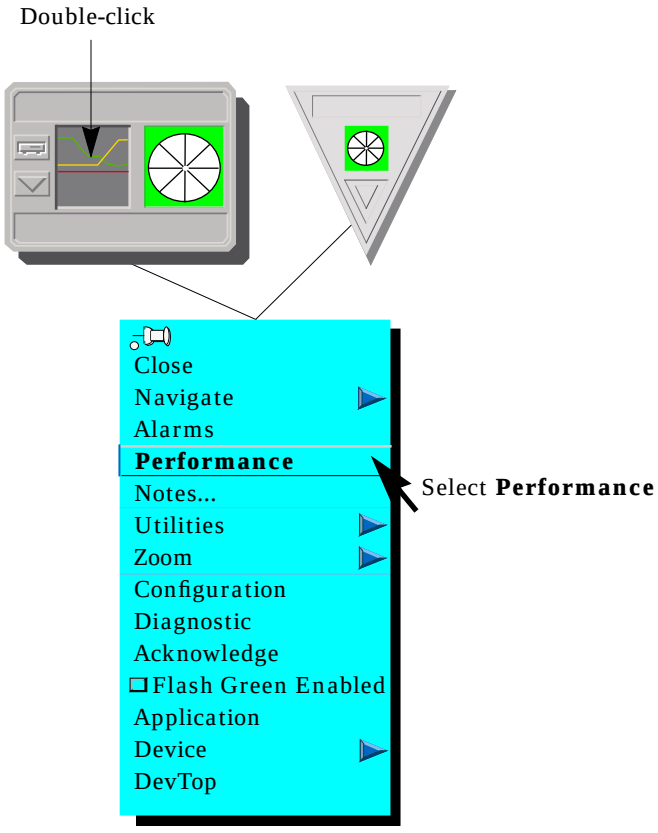
The following sections describe the fields and buttons available for individual Cabletron hub devices.

Accessing the Device Performance View

You can access the Device Performance View using one of the following methods (refer to Figure):

- Double-click on the Performance View label of the icon.
- Highlight the icon and select **Performance** from the Icon Subviews menu.

Figure 6-1. Accessing the Device Performance View



IRBM, IRM2, IRM3 and MiniMMAC Hubs

The Performance View displays monitoring point performance statistics gathered by SPECTRUM. These statistics include load, error rate, frame rate and collision rate. The banner across the top of the Performance View provides information about the monitoring point. The border color of the banner indicates the device status. The banner area contains the following fields:

Name
The user-defined or default name of the model.

Location
The location of the device as entered in the Creation dialog box when the model was created. If no location has been specified, this field displays the model name of the SPECTRUM location view containing the device.

Network Address
The network IP address of the device.

Device Type
The SPECTRUM Model Type (e.g., Hub_CSI_IRBM).

System Up Time
The time, displayed in *days+hours:minutes:seconds*, that the device has been on-line.

The Performance View includes a multi-attribute line graph that shows network load in green, frame rate in blue, percent errors in orange and the percent collisions in yellow. For the IRM2 and IRM3 hubs, the number of active users is shown in brown.

Table 6-1 displays the categories of information supplied by the Performance View.

Table 6-1. Multi-Attribute Line Graph Definitions

Statistic	Definition
Load	Percentage of the bandwidth used by the device.
Frame Rate	Number of frames per second that are repeated by the device.
% Errors	Percentage of frames that are Error Frames.
% Collisions	Percentage of frames that are Collision Frames.
Active Users	(IRM2 and IRM3 only.) The number of active users seen by this device.

In addition to the banner and the Multi-Attribute Line Graph, the Performance View provides the following buttons:

Log/Lin

This button allows you to toggle how the multi-attribute line graph is displayed. You can display the network statistics in Logarithmic or Linear format.

Detail

This button displays a view that shows Frame Breakdown and Error Breakdown pie charts. Four buttons at the bottom of each pie chart allow you to display the statistics as a total count or as a percentage of the sum of all attributes in each pie chart. You can also select **Clear** to clear the pie chart's buffer. The pie chart will resume displaying the count as a percentage of the sum of all attributes in the pie chart since the buffer was cleared. For more information on how these pie charts display network attributes, refer to ***SPECTRUM Views***. The Detail button is not available for the IRM3 Hub.

The **No_resources** field, located below the pie chart, displays the number of No Resource conditions detected by the hub. Table 6-2 and Table 6-3provide definitions of the information contained in the pie charts.

Table 6-2. Frame Breakdown Pie Chart

Statistic	Definition
Good Frames	The number of frames detected on all ports of the hub.
Errors	The sum of all errors including alignment, CRC, runts, giants and OOW collisions.
Collisions	The sum of received and transmitted collisions detected by the hub.

Table 6-3. Error Breakdown Pie Chart

Statistic	Definition
Alignment	The number of frames with alignment errors detected by the hub.
CRC Errors	The number of frames with bad CRCs detected by the hub.
Runts	The number of frames detected with a size of less than 64 bytes.

Table 6-3. Error Breakdown Pie Chart (Continued)

Statistic	Definition
Giants	The number of frames detected with a size greater than 1518 bytes.
OOW Coll	The number of Out Of Window collisions detected by the hub.

Errors

This button, available only for the IRM3, provides the same information as the Detail button for IRM2, IRBM, and MiniMMAC hubs.

Frames

This button, available only for the IRM3, displays two pie charts. The Frame Size pie chart shows the total number of frames, grouped according to their size in bytes. The Protocol pie chart shows the number of frames per protocol type.

Scroll to Date-Time

This button allows you to view historical data related to hub performance. For example, if you set a date and time for two days ago, you can view hub performance statistics for two days ago.

Change Time Scale

This button allows you to change how time is measured on the line graph in the hub Performance View. You can choose to display statistics in time blocks ranging from 1 to 100 hours.

Events

This button accesses the Event Log containing a list of hub-specific network events. Use the menu or the scroll bars to scroll through the Event Log.

Alarms

This button allows you to access the Alarms View. The Alarms View displays a list of current network alarms. For information on how to use the Alarms View, refer to the ***Enterprise Alarm Manager***

SIRM and MRXI Hubs

The Performance View for the SIRM and the MRXI hubs provides the following information:

Model Name
The user-defined or default name of the model.

Device Name
The ASCII name of the device read from the device.

Network Address
The network IP address (e.g., 132.177.118.24).

The Performance View also displays a bar gauge at the bottom of the view. The right box (green number) and the bar gauge show the number of packets since the last poll. The left box (white number) shows the number of packets measured since the hub was powered up.

In addition, the Performance View provides a **Packets Per Poll** button. The **Packets Per Poll** button displays a graph showing the rate of packets counted per poll. The graph that appears has a scroll bar that lets you view the recent hub performance statistics. The bottom axis of the graph shows the time in seconds broken into 5 minute intervals. The right axis shows the rate of packets received during the last polling interval.

There is also a small box on the graph that shows the rate of packets received during the last polling interval. You can scroll to a particular date and time to view past hub performance statistics. A **Set Date-Time** (SDT) button is provided in the lower-right corner for setting a specific date and time for which you want to view statistics.

MIM Performance View

You can access non-intelligent and third-party-intelligent MIM Performance Views through the following views: The hub Device View, or the HASPART Panel in the hub Application View. You can also refer to the management module guide for any third-party modules installed in the hub. To open the MIM Performance View from the Device View, follow these steps:

1. Click on the module to highlight it.
2. Select **Icon Subviews** from the View menu.
3. Select **Module Performance** from the Icon Subviews menu.

You can also access the MIM Performance View from the Device View as follows:

1. Click on the Module Label with the right mouse button to access the Icon Subviews menu.
2. Select **Module Performance** from the Icon Subviews menu.

IRBM, IRM2, IRM3 and MiniMMAC Hubs

The MIM Performance View displays monitoring point performance statistics gathered by SPECTRUM. These statistics include load, error rate, frame rate and collision rate. The banner across the top of the Performance View provides information about the monitoring point. The border color of the banner indicates the device status. The border area contains the following fields:

Name
The user-defined or default name of the model.

Location
The location of the device as entered in the Creation dialog box when the model was created. If no location has been specified, this field displays the model name of the SPECTRUM location view containing the device.

Network Address
The network IP address of the device.

Device Type
The SPECTRUM Model Type (e.g., Hub_CSI_IRBM).

System Up Time
The time, displayed in *days+hours:minutes:seconds*, that the device has been online.

Slot Number
The number of the hub slot in which the module is installed.

The Performance View includes a multi-attribute line graph that shows network load in green, frame rate in blue, error rate in orange and collision rate in yellow. The IRM3 has an additional field, Active Users, which displays the number of active users detected by the hub. Table 6-1 displays the categories of information supplied by the MIM Performance View.

In addition to the banner and the Multi-Attribute Line Graph, the Performance View provides the following buttons:

Log/Lin

This button allows you to toggle how the multi-attribute line graph is displayed. You can display the network statistics in Logarithmic or Linear format.

Detail

This button, not available for the IRM3, displays the same Detail view as described earlieer in this chapter. Refer to that section for information on this view.

Errors

This button, available only for the IRM3, provides the same information as the Detail button for IRM2, IRBM, and MiniMMAC hubs.

Frames

This button, available only for the IRM3, displays two pie charts. The Frame Size pie chart shows the total number of frames, grouped according to their size in bytes. The Protocol pie chart shows the number of frames per protocol type.

Scroll to Date-Time

This button allows you to view historical data related to module performance. For example, if you set a date and time for two days ago, you can view module performance statistics for two days ago.

Change Time Scale

This button lets you change how time is measured on the line graph in the MIM Performance View. You can choose to display statistics in time blocks ranging from 1 to 100 hours.

MIM Configuration

This button opens the MIM Configuration View. This view allows you to configure the module information. Table 6-1 provides definitions of the fields contained in the MIM Configuration View. This view also has one button. The **Config Alarms** button allows you to access the MIM Configure Alarms View,

which allows you to set threshold alarms and enable them. Table 6-4 displays the information contained in this view. The Configure Alarms View also displays an Error Source Table, which lets you select the types of errors that will cause alarms. Table 4-2, in the Configuration View chapter, provides the information contained in the Error Source Table.

Table 6-4. MIM Configuration View Fields

Field	Description
MIM Name	The name of the module.
Serial Number	The serial number of the MIM device.
MIM Type	The type of module (i.e., IRM2).
Slot Number	The number of the hub slot that contains the module.
Ports On Out Of	The number of operating ports on the device out of the total number of ports.

Table 6-5. IRM2, IRM3, IRBM, and MiniMMAC Configure Alarms View Fields

Field	Description
Model Name	The user-defined or default name of the module model.
MIM Name	The name of the module device.
Slot Number	The number of the hub slot that contains the module.
Traffic Alarms	Enables the sending of device-level traffic traps.
Traffic Threshold Alarm	Permits a port to be disabled on a traffic threshold alarm.
Traffic Threshold	The threshold of packets within the Time Base that will cause a traffic alarm.
Collisions Alarms	Enables the sending of device-level collision alarms.
Collisions Threshold Alarm	Permits a port to be disabled on a collision threshold alarm.
Collisions Threshold	The threshold of collisions per good packet that will generate an alarm. Values can be 1 to 15.
Error Alarms	Enables the sending of device-level error alarms.
Error Threshold Alarm	Permits a port to be disabled on an error threshold alarm.
Error Threshold	The threshold of errors per good packet that will generate an alarm.

SIRM and MRXI Hubs

The Performance View for the SIRM and the MRXI modules provides the following information:

Model Name
The user-defined or default name of the hub model.

Network Address
The network IP address (e.g., 132.177.118.24).

MIM Name
The name of the module.

MIM Type
The type of module (i.e., IRM2).

Slot Number
The number of the hub slot that contains the module.

Ports On Out Of
The number of operating ports on the device out of the total number of ports.

Standard Statistics

This button allows you to access the MIM Standard Statistics View. The MIM Standard Statistics View displays two bar gauges at the bottom of the view, displaying information on Packets and Collisions. The right box (green number) and the bar gauge show the number of packets/collisions since the last poll. The left box (white number) shows the number of packets/collisions measured since the module was powered up. The **Packets** and **Collisions** buttons display rate graphs for each statistic.

Config Alarms

This button allows you to access the MIM Configure Alarms View, which allows you to set threshold alarms and enable them. Table 6-6 displays the information contained in this view.

Table 6-6. SIRM and MRXI MIM Configure Alarms View Fields

Field	Description
Model Name	The user-defined name of the MIM model.
Network Address	The IP address of the device.
MIM Name	The name of the MIM device.

Table 6-6. SIRM and MRXI MIM Configure Alarms View Fields (Continued)

Field	Description
Slot Number	The number of the hub slot that contains the MIM.
Traffic Alarms	Enables the sending of device-level traffic traps.
Traffic Threshold	The threshold of packets within the Time Base that will cause a traffic alarm.
Collisions Alarms	Enables the sending of device-level collision alarms.
Collisions Threshold	The number of collisions per good packet measured by the device that will generate an alarm. Values can be 1 to 15.

HASPART Panel

The **HASPART** Panel allows you to access Port Performance Views for the modules installed in the hub. You can either double-click on the name of the module in the HASPART Panel, or you can highlight the name and click on OK. The Port Performance View for modules is described in the next section.

Port Performance View

The Cabletron hub Port Performance View provides the following navigational features:

- Buttons allow you to access increasingly detailed views of network information.
- Table entries within views provide double-click zones which navigate you to device-specific Information Views.

You can display Port Performance Views from the DevTop View or the Device View.

Device View Access Method

There are three ways to access the Port Performance View from the Device View. To display a Port Performance View from the Device View, follow these steps:

1. Click on an individual port in the **Logical MIM Representation** with the right mouse button to display the pop-up menu.

2. Select **Port Performance View** from the pop-up menu.

You can also display the Port Performance View from the Device View by following these steps:

1. Click on an individual port in the **Logical MIM Representation** to highlight it.
2. Choose **Icon Subviews** from the View menu.
3. Choose **Port Performance View** from the Icon Subviews menu.

Finally, Device View port icons provide double-click access to the Port Performance View. For port icons including a bar graph, double-click on the bar graph to access the Port Performance View. For port icons not including a bar graph, double-click on the port status label to access the Port Performance View.

DevTop View Access Method

There are three ways to access the Port Performance View from the DevTop View. To display a Port Performance View from the DevTop View follow these steps:

1. Double-click on a module in the **Simplified Device Panel**. One or more port representations appear in the Port Connections Panel.
2. Double-click on either one of the gauges of a port representation in the Port Connections Panel. The Port Performance View appears.

You can also display a Port Performance View from the DevTop View by following these steps:

1. Double-click on a module in the **Simplified Device Panel**. One or more port representations appear in the Port Connections Panel.
2. Click on one of the port icons in the Port Connections Panel with the right mouse button to display the pop-up menu.
3. Choose **Performance** from the pop-up menu.

Finally, you can display the Port Performance View from the DevTop View by following these steps:

1. Double-click on a module in the **Simplified Device Panel**. One or more port representations appear in the Port Connections Panel.
2. Click on one of the port icons in the Port Connections Panel to highlight the icon.
3. Choose **Icon Subviews** from the View menu.
4. Choose **Performance** from the Icon Subviews menu.

IRM2, IRM3, IRBM, and MiniMMAC Hubs

The Port Performance View for IRM2, IRM3, IRBM and MiniMMAC hubs displays monitoring point performance statistics gathered by SPECTRUM. These statistics include load, error rate, frame rate and collision rate. The banner across the top of the Port Performance View provides information about the monitoring point. The border color of the banner indicates the device status. The border area contains the following fields:

Name
The user-defined or default name of the model.

Location
The location of the device as entered in the Creation dialog box when the model was created. If no location has been specified, this field displays the model name of the SPECTRUM location view containing the device.

Network Address
The network IP address of the device.

Device Type
The SPECTRUM Model Type (e.g., Hub_CSI_IRBM).

System Up Time
The time, displayed in *days+hours:minutes:seconds*, that the device has been on-line.

Slot/Port Number
The slot number and the port number in this format: 1.1 (Slot number 1, Port number 1).

The Port Performance View includes a multi-attribute line graph that shows network load in green, frame rate in blue, error rate in orange and collision rate in yellow. The IRM3 has an additional field, Active Users, which displays the number of active users detected by the hub. Table 6-1 displays the categories of information supplied by the Port Performance View.

In addition to the banner and the Multi-Attribute Line Graph, the Performance View provides the following buttons:

Log/Lin

This button allows you to toggle how the multi-attribute line graph is displayed. You can display the network statistics in Logarithmic or Linear format

Detail

This button, not available for the IRM3, displays the same Detail View as described earlier in this chapter. Refer to that section for information on this view.

Errors

This button, available only for the IRM3, provides the same information as the Detail button for IRM2, IRBM, and MiniMMAC hubs.

Frames

This button, available only for the IRM3, displays a view that shows pie charts. The Frame Size pie chart shows the total number of frames, grouped according to their size in bytes. The Protocol pie chart shows the number of frames per protocol type.

Scroll to Date-Time

This button allows you to view historical data related to port performance. For example, if you set a date and time for two days ago, you can view port performance statistics for two days ago.

Change Time Scale

This button lets you change how time is measured on the line graph in the Port Performance View. You can choose to display statistics in time blocks ranging from 1 to 100 hours.

Port Configuration

This button opens the Port Configuration View. This view allows you to configure the port information. Table 6-7 provides definitions of the fields contained in the Port Configuration View. The Connects_to panel at the bottom of the view allows you to access performance views for devices connected to the port. The **Config Alarms** button allows you to access the Port Configure Alarms View, which allows you to set threshold alarms and enable them. Table 6-8 displays the information contained in the Configure Alarms View. The Configure Alarms View also displays an Error Source Table, which lets you select the types of errors that will cause alarms. Table 4-2, in

the Configuration View chapter, provides the information contained in the Error Source Table.

Table 6-7. Port Configuration View Field Definitions

Field	Definition
Model Name	The user-defined or default name of the model.
Network Address	The network IP address (e.g., 134.141.256.145).
MIM/Port Number	The MIM number and the port number, in this format: 1.1 (MIM/slot 1, Port 1).
Port Media Type	The type of cables that can be connected to this port.
Port Topology Type	The topological type of the port (Station or Trunk).
Port Status	The network state of this port.
Port Admin Status	The administrative state of this port (Off or On).
Port Link Status	The state of the link signal for this port.

Table 6-8. Port Configure Alarms View Field Definitions

Field	Definition
Model Name	The user-defined or default name of the model.
Network Address	The network IP address (e.g., 132.177.118.24).
MIM/Port Number	The board number and port number in the format: 1.1 (MIM or slot 1, port 1).
Traffic Alarms	Enables or disables the sending of port level traps for this port.
Traffic Threshold Alarm	Permits a port to be disabled on a traffic threshold alarm (Not available for MiniMMAC and IRBM).
Traffic Threshold	The threshold of packets within the Device Time Base that will cause a traffic alarm.
Collisions Alarms	Enables or disables the sending of port-level collision alarms.
Collisions Threshold Alarm	Permits a port to be disabled on a collision threshold alarm (Not available for MiniMMAC and IRBM).
Collisions Threshold	The number of collisions per good packet measured by the port that will generate an alarm.
Error Alarms	Enables or disables the sending of port-level error alarms.
Error Threshold Alarm	Permits a port to be disabled on an error threshold alarm (Not available for MiniMMAC and IRBM).

Table 6-8. Port Configure Alarms View Field Definitions (Continued)

Field	Definition
Error Threshold	The percentage of errors per good packet that will generate an alarm.
Broadcast Alarms	Enables or disables the sending of port-level broadcast alarms.
Broadcast Threshold Alarm	Permits a port to be disabled on a broadcast alarm (Not available for MiniMMAC and IRBM).
Broadcast Threshold	The number of broadcasts received that will generate an alarm.

SIRM Hubs

The Port Performance View for SIRM and MRXI hubs displays information related to the status of the port. The information in this view includes:

Model Name
The user-defined or default name of the model.

Network Address
The network IP address (e.g., 132.177.118.24).

MIM/Port Number
The MIM (the slot in the hub) number and the port number in this format: 1.1 (Port 1, Slot 1).

Port Media Type
The type of cables that can be connected to this port.

Port Status
The network state of this port.

Port Link Status
The state of the link signal for this port.

Port Admin State
The administrative state of this port (off or on).

Standard Statistics

This button allows you to display the Ethernet Port Standard Statistics View. Table provides definitions of the fields in this view.

Table 6-9. Ethernet Port Standard Statistics View Field Definitions

Field	Definition
Model Name	The user-defined or default name of the model.
Network Address	The network IP address (e.g., 134.141.256.145).
MIM/Port Number	The MIM number and the port number, in this format: 1.1 (MIM/slot 1, Port 1).
Packets	The number of packets this port has seen since the last reset. The white number is the total number, the green number and the horizontal bar gauge are the number since the last poll. The button opens a view that displays a graph showing the rate of change and the value of the graph at the last poll.
Collisions	The number of collisions this port has seen since the last reset. The white number is the total number, the orange number and the horizontal bar gauge are the number since the last poll. The button opens a view that displays a graph showing the rate of change the value of the graph at the last poll.

MRXI Hub

The Port Performance View for the MRXI hub displays information related to the status of the port. The information in this view includes:

Model Name
The user-defined or default name of the hub model.

Network Address
The network IP address (e.g., 134.141.256.145).

MIM/Port Number
The MIM (the slot in the hub) number and the port number in this format: 1.1 (Port 1, Slot 1).

Port Media Type
The type of cables that can be connected to this port.

Port Status
The network state of this port.

Port Link Status
The state of the link signal for this port.

Port Admin State
The administrative state of this port (off or on).;

Standard Statistics

This button allows you to display the Ethernet Port Standard Statistics View. Table 6-10 provides definitions of the fields in this view.

Table 6-10. Ethernet Port Standard Statistics View Field Definitions

Field	Definition
Model Name	The user-defined or default name of the model.
Network Address	The network IP address (e.g., 134.141.256.145).
MIM/Port Number	The MIM number and the port number, in this format: 1.1 (MIM/slot 1, Port 1).
Packets	The number of packets this port has seen since the last reset. The white number is the total number, the green number and the horizontal bar gauge are the number since the last poll. The button opens a view that displays a graph showing the rate of change and the value of the graph at the last poll.
Collisions	The number of collisions this port has seen since the last reset. The white number is the total number, the orange number and the horizontal bar gauge are the number since the last poll. The button opens a view that displays a graph showing the rate of change the value of the graph at the last poll.

Config Alarms

This button lets you display the Ethernet Port Configure Alarms View. Table 6-11 provides definitions of the fields in this view.

Table 6-11. Ethernet Port Configure Alarms View Field Definitions

Field	Definition
Model Name	The user-defined or default name of the model.
Network Address	The network IP address (e.g., 132.177.118.24).
MIM/Port Number	The module number and port number in the format: 1.1 (MIM or slot 1, port 1).
Traffic Alarms	Enables or disables the sending of port level alarms for this port.

Table 6-11. Ethernet Port Configure Alarms View Field Definitions (Continued)

Field	Definition
Traffic Threshold	The threshold of packets within the Device Time Base that will cause a traffic alarm.
Collisions Alarms	Enables or disables the sending of port-level collision alarms.
Collisions Threshold	The number of collisions per good packet measured by the port that will generate an alarm.

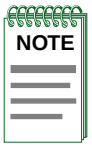
Chapter 7

Event and Alarm Messages

What is in this Chapter

This chapter describes the events and alarms that the Cabletron Ethernet Hubs Management Module supports. It also notes if an event is mapped to an identical alarm message, and if it provides any corresponding probable cause message.

Events and alarms originate as generic Simple Network Management Protocol (SNMP) traps sent from the physical hub devices. These traps, or unsolicited messages, are translated as SPECTRUM events and displayed in the Event Log. For more information on specific SNMP traps, refer to RFC 1213 available through the Internet system. Also refer to the Management Information Base (MIB) documentation for each specific hub device.



Each event/alarm listed below includes: the event code, the event/alarm message, followed by a brief description of the event/alarm, an alarm mapping indicator, and any probable cause message for the mapped alarm. When variable data is inserted in a message, it is indicated by a {v}. Data in braces will be replaced by the named variable followed by a specific value, without the braces.

Cabletron Ethernet Hub Alarms and Events

Table 7-1 lists the events and alarms supported by the Cabletron Ethernet Hub devices. The event message files are located in the following directory:

***/SPECTRUM Directory Path/*SG-Support/CsEvFormat**

The alarm message files are located in the following directory:

***/SPECTRUM Directory Path/*SG-Support/CsPCause**

Table 7-1. Events and Alarms

Event Message	Probable Cause Message
00010203 The model created is not the same type as the device. Model type = {v}, Name = {v}, User = {v}.	**00010203** The model created is not the same type as the device.
00010306 A(n) {v} device, named {v}, has been cold started.	**00010306** Not Applicable.
00010307 The device named {v} has been warm started.	**00010307** Not Applicable.
00010308 A(n) {v} device, named {v}, has detected a commumication Link Down.	**00010308** Communication link is down.
00010309 A(n) {v} device, named {v}, has detected a communication link up.	**00010309** Not Applicable.
0001030a The device named {v} has detected an authentication failure.	**0001030a** Other user is trying to connect to device with an invalid community string.
0001030b A(n) {v} device, named {v}, has detected an EGP Neighbor or loss.	**0001030b** Lost contact with EGP neighbor.

Table 7-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
00010401 Device {v} of type {v} is created with an IP address already used by another model.	**00010401** DUPLICATE IP ADDRESS The model has the same IP address as that of some other Model.
00010402 Device {v} of type {v} is created with a physical (Mac) address already used by another model.	**00010402** DUPLICATE PHYSICAL ADDRESS The model has the same Physical address (Mac address) as that of some other model.
00010601 Port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) of {v} (name - {v}) has segmented.	**00010601** A port has changed from operational to segmented.
00010602 Port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) of {v} (name - {v}) is no longer segmented.	**00010602** Not Applicable.
00010603 Network configuration change reported by {v} (name - {v}). MAU attached to port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}).	**00010603** Not Applicable.
00010604 Network configuration change reported by {v} (name - {v}). MAU previously attached to port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) has been removed or powered down.	**00010604** A previously attached MAU has been removed or powered down. This trap should only occur for MIMs that support link state.
00010605 New source address {X 5} (Instance ID {0 6}) detected by {t} (name - {m}) on port {I 3} (Instance ID {0 4}) of board in slot {I 1} (Instance ID {0 2}).	**00010605** Not Applicable.

Table 7-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
00010606 Source Address {v} (Instance ID {v}) timeout detected by {v} (name - {v}) on port {v} (Instance ID {v}) of board in slot {v} (Instance ID {v}).	**00010606** Not Applicable.
00010607 Device configuration change reported by {v} (name - {v}). Board in slot {I 1} (Instance ID {0 2}) has been removed.	**00010607** A MIM has been removed from this MMAC.
00010608 Device configuration change reported by {v} (name - {v}). Board type {I 3} has been installed in slot {I 1}. Its new instance ID is {0 2}.	**00010608** Not Applicable.
00010609 Network configuration change reported by {v} (name - {v}). Port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) has failed polling. Redundancy activated for Circuit {v} (Instance ID {v}).	**00010609** An active port in a redundant circuit has failed polling. This indicates the activation of redundancy.
0001060a Network configuration change reported by {v} (Instance ID {v}). Port {v} (Instnace ID {v}) on board in slot {v} (Instance ID {v}), Circuit {v} (Instance ID {v}) has been activated.	**0001060a** Not Applicable.
0001060b Redundancy diagnostics of {v} (name - {v}) indicate port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}), Circuit {v} (Instance ID {v}) has failed.	**0001060b** During this MMAC's periodic redundancy diagnostics, it was found that a port in a redundant cycle has failed. This does not indicate that redundancy has been activated, but it should be fixed before it is needed.

Table 7-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
0001060c Traffic threshold, {v} (Instance ID {v}) packets per {v} (Instance ID {v}) seconds, exceeded for {v} (name - {v}).	**0001060c** This trap will be generated when the traffic (good packets per time interval) has been exceeded for the entire MMAC.
0001060d Threshold exceeded for error type {v} (Instance ID {v}). Error type {v} packets exceeded {v} (Instance ID {v})% of good packets in {v} seconds for {v} (Instance ID {v}).	**0001060d** This trap will be generated when packets of the selected error type exceed a threshold percentage of the good packets for a particular interval for the entire MMAC.
0001060e Collision threshold exceeded. Collisions exceeded {v}% of good packets in {v} seconds for {v} (Instance ID {v}).	**0001060e** This trap will be generated when collisions exceed a threshold percentage of the good packets for a particular interval for the entire MMAC.
0001060f Traffic threshold, {v} packets per {v} seconds, exceeded on board in slot {v} of {v} (name - {v}).	**0001060f** This trap is generated when the traffic (good packets per time interval) has been exceeded for a particular MIM.
00010610 Error threshold exceeded. An error threshold, {v}% of good packets in {v} seconds exceeded on board in slot {v} (Instance ID {v}) of {v} (name - {v}).	**00010610** This trap will be generated when packets of the selected error type exceeds a threshold percentage of the good packets for a particular interval for a particular MIM. This most likely indicates a bad MIM.
00010611 Collisions threshold exceeded. Collisions exceeded {v}% of good packets in {v} seconds on board in slot {v} (Instance ID {v}) of {v} (name - {v}).	**00010611** This trap will be generated when collisions exceed a threshold percentage of the good packets for a particular interval for a particular MIM.
00010612 Traffic threshold, {v} packets per {v} seconds, exceeded on port {v} (Instance ID {v}) of board in slot {v} (Instance ID {v}) of {v} (name - {v}).	**00010612** This trap will be generated when the traffic (good packets per time interval) has been exceeded for a particular port.

Table 7-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
00010613 Error threshold exceeded. An error threshold, {v}% of good packets in {v} seconds, has exceeded on port {v} (Instance ID {v}) of board in slot {v} (Instance ID {v}) of {v} (name - {v}).	**00010613** This trap will be generated when packets of the selected error type exceeds a threshold percentage of the good packets for a particular interval for a particular port.
00010614 Collision threshold exceeded. Collisions exceeded {v}% of good packets in {v} seconds on port {v} (Instance ID {v}) of board in slot {v} (Instance ID {v}) of {v} (name - {v}).	**00010614** This trap will be generated when collisions exceed a threshold percentage of the good packets for a particular interval for a particular port.
00010615 Port type changed. Port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) of {v} (name - {v}) is now type {v} (Instance ID {v}).	**00010615** A port has been changed from a station port to a link port, or vice versa.
00010616 Address lock changed for {v} (name - {v}). New lock status is {v} (1 = Off / 2 = On).	**00010616** The status of the address lock has been changed.
00010617 Port security violation occurred on port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) of {v} (name - {v}). Violating address is {v}.	**00010617** A source address other than those locked to a port has been seen.
00010618 Port violation reset. Port {v} (Instance ID {v}) on board in slot {v} (Instance ID {v}) of {v} (name - {v}) has been reset.	**00010618** Management intervention has reset a port after a violation has occurred.
00010619 Environment Temperature Warm detected by {v} (name - {v}).	**00010619** This device detects that the temperature within the device has reached a WARM condition.

Table 7-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
0001061a ENVIRONMENT TEMPERATURE HOT detected by {v} (name - {v}).	**0001061a** This device detects that the temperature within the device has reached a HOT condition.
0001061b Environment Voltage Low detected by board in slot {v} (Instance ID {v}) of {v} (name - {v}).	**0001061b** A board detects that its power supply voltage is low.
0001061c Environment Temperature has returned to a normal state at slot {I 1} (Instance ID {0 2}), has been detected by {v} (name - {v}).	**0001061c** Not Applicable.
0001061d Environment Voltage has returned to a normal state, has been detected by {v} (name - {v}).	**0001061d** Not Applicable.
0001061e A fan in the system’s chassis is operating at an abnormal RPM rate, has been detected by {v} (name - {v}).	**0001061e** The device detects that a fan in the system’s chassis is operating at an abnormal RPM rate.
0001061f A fan in the system’s chassis is operating at a normal RPM rate, has been detected by {v} (name - {v}).	**0001061f** Not Applicable.
00010620 User defined broadcast threshold, {v} broadcast packets within {v} seconds, exceeded on {v} (name - {v}).	**00010620** Device Broadcast Threshold Exceeded. This trap will be generated when the broadcast (packets per time interval) has been exceeded for the entire MMAC.

Table 7-1. Events and Alarms (Continued)

Event Message	Probable Cause Message
00010621 User defined broadcast threshold, {v} broadcast packets within {v} seconds, exceeded on the board in slot {v} of {v} (name - {v}).	**00010621** Board Broadcast Threshold Exceeded This trap will be generated when the broadcast (packets per time interval) has been exceeded for the given board.
00010622 User defined broadcast threshold, {v} broadcast packets within {v} seconds, exceeded on port {v} of the board in slot {v} of {v} (name - {v}).	**00010622** Port Broadcast Threshold Exceeded This trap will be generated when the broadcast (packets per time interval) has been exceeded for the given port.
00010625 Network configuration changes reported by {v} (name - {v}). {v} (name - {v} status is now {v} (Instance ID {v}).	**00010625** Not Applicable.
00010626 Device configuration change reported by {v} (name - {v}). Acquired database of {v} (name - {v}) is full.	**00010626** Not Applicable.
00010639 Environment Temperature Warm condition at slot {I 1} (Instance ID {0 2}) has been detected by {v} (name - {v}).	**00010639** This device detects that the temperature within the device has reached a WARM condition.
0001063a ENVIRONMENT TEMPERATURE HOT condition at slot {I 1} (Instance ID {0 2}), has been detected by {v} (name - {v}).	**0001063a** This device detects that the temperature within the device has reached a HOT condition.
0001063b Environment Voltage Low condition has been detected by power supply in slot {I 1} (Instance ID {0 2}) of {v} (name - {v}).	**0001063b** The device detects that its power supply voltage is low.

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No entries for these letters.